ARCHAEOLOGIA:

OR

MISCELLANEOUS TRACTS

RELATING TO

ANTIQUITY.

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PUBLISHED BY THE

SOCIETY OF ANTIQUARIES OF LONDON,

VOLUME LVIII.

LONDON:

PRINTED BY J. B. NICHOLS AND SONS, PARLIAMENT MANSIONS, VICTORIA STREET, WESTMINSTER.

SOLD AT THE SOCIETY'S APARTMENTS IN BURLINGTON HOUSE.

M.DCCCCII.

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[a] The Society is indebted to Mr. I. C. Gould for the loan of this illustration.

ARCHAEOLOGIA:

OR,

MISCELLANEOUS TRACTS,

&c.

I.—*On some rare forms of Bronze Weapons and Implements.* *By the Rev.* WILLIAM GREENWELL, *D.C.L., F.R.S., F.S.A.*

Read 5th December, 1901.

SOME bronze weapons and implements, which have come into my possession, appear to be of so much interest in respect of novelty and peculiarities of form, manufacture, and ornamentation, as to make it desirable to bring them under the notice of the Society, with the object of placing them on permanent record in *Archaeologia*.

It is possible that by their publication additional light may be thrown upon them, and certain difficulties in connection with them, which now present themselves, may be removed.

It is not proposed in this account to enter upon any discussion with regard to the original source of the bronze cultivation, or of its development through the various lines by which it became spread over the wide area where it once, though at very different times, prevailed. Nor is it intended to make any comparison between the varied types which characterise bronze weapons and implements in the several districts where these types at one time existed. The object is to put in evidence and make available for study articles which may be useful to those engaged in researches in that branch of archæological science with which they are concerned.

Fig. 1.
Dagger, possibly from Hallstatt.
(½ linear.)

DAGGER, POSSIBLY FROM HALLSTATT.

The dagger (fig. 1), about to be described formed lot 25 at the sale of the Forman Collection, by Messrs. Sotheby and Wilkinson, 19th June, 1899. Nothing is known as to the place where it was found or how Mr. Forman became possessed of it. It is, however, not improbable that it came from the cemetery at Hallstatt,

in the Salzkammergut, in Upper Austria, or from some place in that locality, for its general form and some peculiar features connected with it almost certainly point to that part of Europe for its origin.

It is of much value and interest in connection with a period, the time of the transition from bronze to iron, about which every additional piece of evidence is of importance.

It consists in the main of bronze, but contains also a portion of iron, which not only constitutes an integral part of its construction, but aids in its decoration. The length of the entire weapon is $10\frac{1}{4}$ inches, of which the blade comprises $5\frac{3}{4}$ inches. The handle, which is $4\frac{1}{2}$ inches long, terminates on the blade in the not uncommon semicircular form. The grip is made from a round bar of bronze which widens in diameter from $\frac{1}{2}$ inch at either end to $\frac{3}{4}$ inch at the middle, at which place it is encircled by three narrow rounded ribs, that at the middle being wider and higher than the other two, and having a very thin rib touching it on each side. At the top are two curved horns, each of which originally, no doubt, terminated in the head of an animal, probably a horse; one of them, however, is now wanting. Between the horns is a round pillar $\frac{1}{4}$ inch in diameter, which rises a little above the level of the horns. It swells slightly at the top and has six thin ribs upon it, the three intermediate ones being very delicate, the other three increasing in width from the bottom one upwards. At the base of the handle, where it widens and embraces the blade, are, upon one face, seven small circular holes, in two of which are the remains of some substance, probably coloured paste, which once filled all the seven. They no doubt represent, by way of survival in the shape of ornament, the heads of rivets, by means of which handles were usually fastened on to blades. The animal's head at the end of the complete horn has, at the place where the eye would be, a similar hole, once filled with the same material as that which filled the holes at the bottom of the handle. This hole, like the others, is placed on the side which may be supposed to have been the outside one when the dagger was worn in the belt. At the end of each side of the handle, where it is attached to the blade, is a small projection, which is somewhat similar to the head at the end of the horn. It also is probably meant for an animal's head, the eye being formed by the outer one at either end of the seven holes already mentioned.

On each face of the blade where it joins the handle is a plate of iron fastened on to the blade by two bronze rivets with round heads. The plates terminate in a semicircular form similar to that of the handle itself. They are prolonged upwards, and become united to form a tang, which, passing through the grip of

the handle and the pillar, most likely ended originally in a round knob, now decayed, which protected beyond the flat top of the pillar. The blade is now shorter and narrower than it once was, and shows evident signs of long continued use, having probably served for a knife as well as for a dagger, in which service it has been whetted down in a not very workmanlike way to its present form.

The dagger undoubtedly belongs to a time when a knowledge of iron had lately spread into the country where it was made, whatever locally that time may have been. The use of iron in the plates on the blade must, to some extent at least, be considered as a decorative one, though they further served a useful purpose in strengthening the fastening of the handle to the blade. The manner in which the iron occurs as an ornamental part of the dagger appears to point to the scarceness of that metal when the weapon was made. It was probably not long before the time when bronze handles, of both daggers and swords, were attached to blades of iron, those being in each case of much the same form as that of the older bronze blades. The cemetery at Hallstatt, so prolific in articles associated with the dead, has produced many examples of such weapons. In several instances, especially in the case of one,[a] the handles of the daggers found at that place are, in their general form, and to some extent even in minute particulars, very similar to that of the dagger under notice.

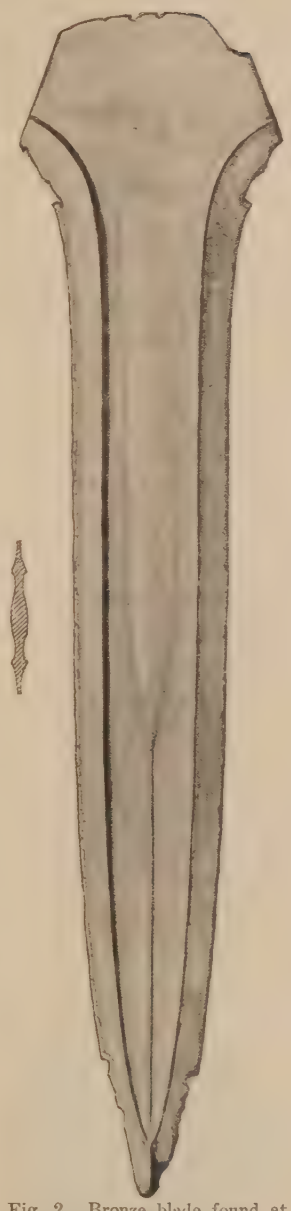


Fig. 2. Bronze blade found at Kimberley. ($\frac{1}{2}$ linear.)

KIMBERLEY, NORFOLK.

The blade (fig. 2), about to be described, was found at Kimberley, in Norfolk. It is $13\frac{3}{8}$ inches long, 3 inches wide at the broadest part of the handle plate, and

[a] Von Sacken, *Das Grabfeld von Hallstatt*, p. 32, pl. v. fig. 14. A dagger with a bronze handle and iron blade, in every way very like that above described, which was found somewhere in Bavaria, is preserved in the National Museum at Munich. Lindenschmit, *Alterthümer*, vol. ii. part 2, pl. iv. fig. 6.

narrows to 2 inches at the upper end of the same plate, which is slightly curved. There are no holes for rivets nor is there any other provision for attaching the handle. A very shallow slightly rounded midrib, which begins $2\frac{1}{4}$ inches from the end of the handle plate, where it is $\frac{7}{8}$ inch wide, extends down each face of the blade, gradually tapering for a length of $6\frac{1}{2}$ inches. It then becomes a very narrow rib, which is prolonged, for a length of 4 inches, to a point where two side ribs, to be presently noticed, unite. These ribs commence just above the widest part of the handle plate, and are carried along each side of the blade parallel to the edge, at a distance of $\frac{3}{8}$ inch from it. After a course of $11\frac{1}{2}$ inches they join and form a single rib which terminates at the point of the weapon. On each edge at the top of the blade is a notch, $\frac{3}{4}$ inch long. This feature, which is common to many sword blades, and which in some cases has the edge serrated, has never been satisfactorily explained.

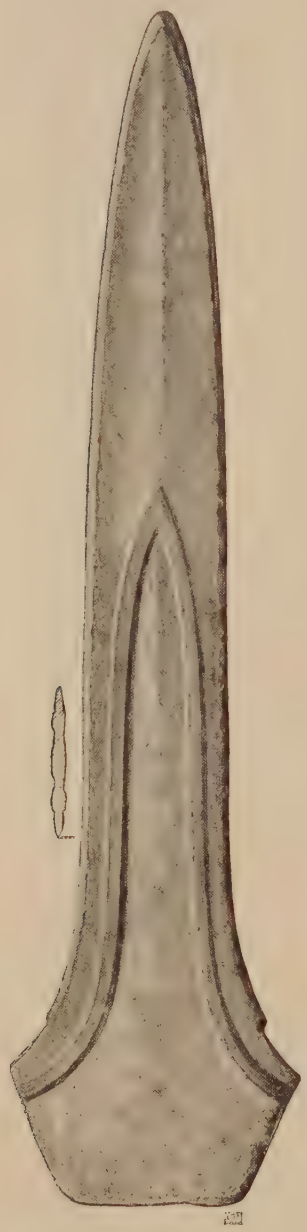


Fig. 3. Bronze blade found near Beaune. ($\frac{1}{4}$ linear.)

The blade, which is of a size and shape more adapted for the purposes of a halbert than of a dagger, is of a very unusual type, nor am I acquainted with the occurrence of one at all like it in the United Kingdom. It will be seen in the account of the weapon next to be noticed that similarly shaped blades, and very much like the Kimberley one in other respects, have been found in France, though very rarely.

BEAUNE, FRANCE.

The very massive blade (fig. 3) now under notice was found near Beaune, in the Department of Côte d'Or, France. It is $26\frac{3}{4}$ inches long, $6\frac{1}{2}$ inches wide at the broadest part of the handle plate, narrowing to a width of 4 inches at the top of the plate, which is straight. It has notches, $1\frac{1}{2}$ inch long, similar to those on the Kimberley blade. A shallow convex midrib, 1 inch wide where it is first distinguishable, tapers gradually from an uncertain point on each face of the blade to a sharp end, at a distance of $15\frac{3}{8}$ inches from the top of the handle plate. A flat rib,

$\frac{1}{4}$ inch wide, which begins $\frac{3}{4}$ inch above the broadest part of the handle plate, is carried along at a distance of $\frac{3}{4}$ inch from each bevelled edge of the blade, to which it is parallel, for a length of $14\frac{1}{2}$ inches, where the two ribs unite and are prolonged in a narrow rounded rib to the end of the blade. The point of the midrib is conterminous with the junction of the flat side ribs. Like the Kimberley blade there are no rivet holes.[a]

This very remarkable weapon can scarcely have been used in any other way than as a slashing instrument fixed at the end of a long handle. It is essentially a similar blade to that from Kimberley, from which it only differs in size. Indeed so like are the two that they might well have both been made in the same workshop.

COLOPHON, IONIA.

The knife was found, associated with the silver pin and glass pendent ornament to be presently described, in a grave, surrounded by large stones, at the foot of a hill near to the site of Colophon, in Ionia.

It measures $13\frac{1}{8}$ inches in length, of which the handle, including the tang, occupies $4\frac{3}{8}$ inches; the width is $\frac{3}{4}$ inch. It is strongly made, in form slightly curved, and thickens at the back to $\frac{3}{8}$ inch. It has a very narrow rib on each face, running the whole length of the blade, and parallel to it at a distance of $\frac{1}{4}$ inch from the back, which has a similar delicate rib on each side. The handle consists of a continuation of the blade in the shape of a flat plate of bronze, the edges of which are turned over to embrace the two pieces of ivory, which, with the enclosing bronze, constitute the handle. Two thin ribs, one on each side, are carried along the upper and lower edge of the handle, the upper ribs being a continuation of the ribbed edges of the back of the blade, the lower corresponding in position and size with the upper. The end of the handle plate is prolonged in a tang $\frac{7}{8}$ inch long, upon which there was once fixed a knob of ivory or some other material which has perished or been lost.

Fig. 4. Bronze knife found near Colophon. ($\frac{1}{2}$ linear.)

[a] A blade very similar, but without the notches at the top, 26 inches long, was found at Plougescant, Côtes du Nord, France. Mortillet, *Musée Préhistorique*, pl. lxix. No. 707.

The pin (fig. 5) is $8\frac{3}{8}$ inches long, strongly made, and has an eye, rounded at the top and pointed at the bottom, at the upper end. The eye, which is $1\frac{3}{8}$ inch long and $\frac{1}{2}$ inch wide, has been formed by turning back the flattened and ridged upper part of the round bar, out of which the pin was made, upon itself, the end being fastened by hammering the thin edges of the flattened part over upon the round bar, which constitutes the body of the pin.

Fig. 5. Silver pin found near Colophon. ($\frac{1}{2}$ linear.)

The glass pendant (fig. 6), of which only two pieces are left, was probably rectangular in shape, and was suspended by a ribbed loop. It is made of semi-opaque glass, which has been cast in a mould, and is of a pale bluish colour. The pattern upon it is formed by spirals of two coils, which terminate in conical knobs, the spirals being separated by lines of dots, of which four remain.[a] A number of more or less similar articles of glass are preserved in the British Museum among various objects found in tombs at Ialysos, in the island of Rhodes, where there is also a knife in all respects precisely like that from Colophon, given by Mr. Ruskin.[b]

Fig. 6. Piece of a glass pendant found near Colophon. ($\frac{1}{1}$).

NAXOS, GREECE.

The knife (fig. 7) was found in the island of Naxos, but under what circumstances I am ignorant, though probably in a tomb. It is made of bronze, $9\frac{3}{4}$ inches long, of which the handle takes up $3\frac{1}{4}$ inches, and is $\frac{7}{8}$ inch wide. The blade, which is two-edged, has a broad rib down the middle, with a smaller one on each side of it. The handle plate, which widens and is turned

Fig. 7. Bronze knife found in the Island of Naxos. ($\frac{1}{2}$ linear.)

[a] A pendant from Palamidi, which has much in common with this, is figured in Perrot and Chipiez, *La Grèce primitive*, p. 944, fig. 504. Glass ornaments of the same kind have occurred, as stated above, at Ialysos and also at Mykenæ and Spata. *Confer* Furtwängler and Loeschcke, *Mykenische Vasen*, pl. c. No. 11; Dumont, *Les Céramiques de la Grèce propre*, pl. iii. fig. 16.

[b] A knife like those from Colophon and Ialysos was found by M. Tsoundas in a chambered tomb at Vaphio. Perrot and Chipiez, *l. c.* p. 977, fig. 552.

outwards at the end, curves over on each side to enclose the ivory plates, which, together with the bronze, form a round handle $\frac{1}{2}$ inch in diameter. The ivory, which is broken away where it joined the blade, has been fastened there on to the handle plate by a bronze rivet, which still remains. It is probable that another rivet occupied a similar position at the top of the handle, but a portion both of the bronze and ivory has been broken off at the place.

NAUPLIA, GREECE.

The knife (fig. 8) was found near Nauplia, but whether alone or associated with other articles is unknown. It is made entirely of bronze, and is $9\frac{1}{2}$ inches long, of which the handle occupies $3\frac{1}{4}$ inches; the width of the blade at the broadest part is $1\frac{3}{8}$ inch. It is one-edged, of a slightly curved and not uncommon form. The handle is of a very peculiar shape, and is ornamented after an unusual fashion. At the upper end is a hole by which to suspend it. On each edge of the handle are three depressions, so arranged as to allow it to be held conveniently in the right hand, either by the three first fingers being placed in the hollows on the upper edge with the thumb in the hollow next the blade in the under edge, or *vice versâ*, by placing the three fingers in the lower hollows and the thumb in the hollow next the blade in the upper edge, the little finger in each case closing upon the end. It appears to be a development of an earlier implement, where a flat metal tang had been covered with wood, bone, or ivory, fastened on by rivets with rounded heads. The handle terminates on the blade with a raised rib, a survival of the end of the wooden or bone plate of the earlier one. Each face of the handle is ornamented with two curved parallel ribs in relief, which follow the outline of the edge. The handle is further enriched by twelve knobs, in four sets of three each, and by a single one in the corner where the back of the handle joins the blade. These knobs are no doubt survivals, as ornamental appliances, of the rivet heads by which in the earlier implement the wood or bone was fastened on to the bronze handle plate.

Fig. 8. Bronze knife found near Nauplia. ($\frac{1}{2}$ linear.)

This knife appears to be of a quite novel type, both in the form of the handle and its decoration. Knives with metal handles are not uncommon, but one similar to this does not seem to have occurred before.

EGYPT.

The knife (fig. 9) was found in Egypt. It is $10\frac{3}{4}$ inches long, of which the handle takes up 4 inches, and $1\frac{1}{4}$ inch wide at the broadest part. The blade is curved, the rounded point being turned upwards. The handle, fashioned in the shape of the leg of a gazelle or some other of the antelope group, is fastened to the blade by a single rivet, placed close to where it joins the blade. The modelling of the handle is good, the divided hoof and other features are carefully rendered, the whole forming a graceful addition to the implement. It is not possible to assign any date to its manufacture, but it probably does not belong to an early time. Bronze and iron were used contemporaneously in Egypt, and if that country had, like most parts of the world where there was a bronze cultivation, a time when iron was unknown, that period has not hitherto been identified. It is possible, indeed, that the two metals were introduced there together, where before stone only was in use for weapons and implements.

Fig. 9. Bronze knife found in Egypt. ($\frac{1}{4}$ linear.)

VAN, ARMENIA.

The axe (fig. 10) was bought at Van, in Armenia, and is said to have been found in the neighbourhood. It consists of a blade which expands towards the cutting edge, with a socketed handle at the other end, placed at an acute angle to the blade. It is $5\frac{3}{8}$ inches long, of which the blade occupies 3 inches, the width at the edge being above 2 inches. The round socket for the handle, which is $3\frac{1}{4}$ inches long and $\frac{7}{8}$ inch wide, is a complete round for only about half its length, the remaining part, the upper one, being only a half round, which narrows to a blunt point at the end. The socket is ornamented at each extremity with two narrow raised ribs, which surround the openings close to the edge. A

crouching lion is seated on the socket; the mouth is open, and the tail, which is stretched out and curled round at the end, extends almost to the pointed termination of the socket. On each side of the lion is a dog, which springs up towards his head in the act of attacking him.

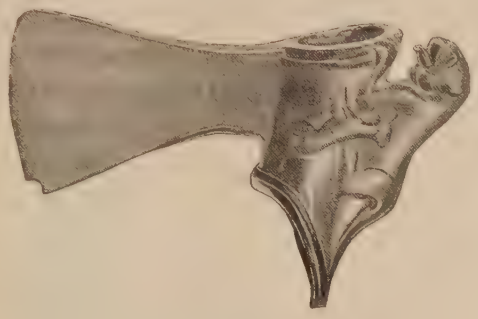


Fig. 10. Bronze axe-head from Van, in Armenia. (½ linear.)

The upper part of the blade on each face, for a space of ¾ inch in depth, is ornamented by a pattern consisting of a series of chevrons set on edge, close and parallel to each other, placed within an enclosing line on each side. There is a similar band of chevrons beneath; the two bands of chevrons having between them a zigzag of two lines, with parallel horizontal crossing lines within. Beyond the second band of chevrons and depending from the lower enclosing line are three shallow loops of double lines. The work is rather roughly executed, and appears to have been done by punching with a chisel.

The handle is an excellent piece of casting, and the modelling of the lion is good; that of the dogs being somewhat inferior.

An axe, similar in many respects to that from Van, is preserved in the British Museum, and came from Hamadan (Ecbatana), in Persia (fig. 11). The

Fig. 11. Bronze axe-head from Hamadan, Persia. (½ linear.)

blade in both axes is of the same form, but there is no ornamentation upon that from Persia, in which, however, a lion forms a component part of the handle. In the Hamadan axe the socket is formed by the animal itself, the hole for the handle passing through the mouth and forepart of the body of the lion. In consequence of this arrangement there was no opportunity for the introduction of the dogs.

There is so much similarity in the shape, manufacture, and artistic treatment of the two axes that they may be considered to have had a common origin, or at least to have been products of the same cultivation and to have been made about the same time.

An axe which to some extent falls into the same series, though it is probably later in date, was found at Khinaman, near Kerman, in the south-east of Persia, on the borders of Baluchistan (fig. 12). It was associated with a grave-burial in a cemetery, where the bodies, which had gone entirely to decay, were accompanied in some instances by heads of javelins, thin oval-shaped knives or razors, plain penannular armlets, and pins ornamented at the head, all of bronze; in each grave there was a small vessel of pottery, and in some a bowl of thin hammered bronze.[a] The axe has two wings and is perforated by a hole for the handle, which passes obliquely through at a point about the middle of the length of the blade. In consequence of the oblique feature in the hole for the handle and its small size, as well as from the form of the blade itself, the axe cannot be regarded as having been made for either a warlike or domestic purpose, but was most probably representative and intended for a ceremonial use. The edge of one wing is sharp, that of the other blunt. The whole length is 7 inches, the width of the blunt edge $3\frac{1}{2}$ inches, that of the sharp one $1\frac{1}{2}$ inch. The inner part of the hole for the handle is barely $\frac{1}{2}$ inch wide, the opening at the one end, where the lion's mouth is placed, is $\frac{5}{8}$ inch by $\frac{3}{8}$ inch, that at the other end being $1\frac{5}{8}$ inch by $\frac{1}{2}$ inch. The ornamentation, which is unusual, is the same on each face, and is confined to the edge of the blunt end and to the openings of the hole for the handle. That on the end consists of two bands, the outer one, $\frac{1}{4}$ inch wide, and which is close

Fig. 12. Bronze axe-head from Khinaman. ($\frac{1}{4}$ linear.)

[a] See "A Fourth Journey in Persia, 1897-1901," by Major P. Molesworth Sykes, in *The Geographical Journal*, xix. 167, where there is an engraving of the axe and one of that from Van, shown in fig. 10.

to the edge, is formed by a wavy line in relief; the inner band, which is about half the width of the other, having a similar, but not such a well defined wavy line. The one opening of the hole for the handle (it is doubtful whether it is the upper or the lower one) represents the gaping mouth of a lion, and has a wavy line, like the inner one at the blunt end, running round it. The other opening, which is pear-shaped, has a similar wavy line round it. Behind the lion's mouth is an object in relief, in shape like a grain of wheat, $\frac{7}{8}$ inch long and $\frac{3}{8}$ inch wide, which is probably meant for the ear of the lion, though it is large in proportion to the mouth. Though the lion itself is not present on this axe, the mouth of the animal is there and also connected with the handle. The three axes are thus brought together by an important element in the scheme of their design, which not unnaturally perhaps suggests a common influence in their manufacture.

So far as I know, neither in that part of the world from which these axes come, nor elsewhere, has any weapon or implement precisely like them been discovered.

Axes somewhat similar in form, which may perhaps be considered as miniature ones, have been found in the cemetery at Hallstatt. They have upon the handle, which is at a right angle to the blade, a figure of a horse, in one case having a rider upon it.[a]

Instruments to some extent similar, but very different in fabric and workmanship, have occurred in Siberia, as for instance in the case of a pick from Minoussink, in Western Siberia, on the handle of which are two goats or ibex.[b] Other implements, a pick and an axe, from the same district, have portions of animals upon them.[c] These implements may possibly be semi-barbarous imitations of better work which reached Siberia from a country further south. Our present knowledge, however, of the bronze cultivation of those parts of Asia is too inadequate to admit of any opinion at all satisfactory being arrived at.

In the country of which M. Ernest Chantre treats in *La Caucase*, one closely associated with Armenia and Persia, though many bronze axes have been met with, to some extent similar to those under notice, none has any animal form upon it or is in other ways at all appreciably like the Van and Persian axes.

[a] Von Sacken, *Das Grabfeld von Hallstatt*, p. 41, pl. viii. figs. 2, 3, 4.

[b] J. R. Aspelin, *Sur l'age du Bronze Altaico Ournalien.* Proceedings of the Congrès International D'Anthropologie of the Stockholm Meeting, i. 570, fig. 24.

[c] Aspelin, *l.c.* p. 571, figs. 29, 31.

The character of the two decorative systems on the Van axe are very dissimilar, nor would it have been expected to find upon the same instrument a well-modelled and executed animal in relief in juxtaposition with a somewhat rudely-made and formal pattern of punched lines. It is possible to suppose that the linear design, one common to a bronze cultivation which is found spread over countries widely separated, may be of native origin, while the art which produced the lion may have been brought into that part of Asia through the influence of a foreign and higher civilisation. This may have passed through Northern Syria and Mesopotamia from a still more southern source. There is some resemblance between the treatment of the lion upon the axe and that of the Assyrian weights of lion-form found by Sir Austen Layard at Nimrûd, now in the British Museum, upon one of which is the name of Shalmeneser the Fourth, whose date is approximately B.C. 727-722.

KERTCH, BLACK SEA.

The axe (fig. 13) was found near Kertch (Panticapaeum), on the Black Sea. It is flat, with very slight flanges on the upper part of the blade, which commence where there is a projection on each side. The axe is $5\frac{5}{8}$ inches long, $1\frac{5}{8}$ inch wide at the end of the handle, $2\frac{3}{4}$ inches across from point to point of the projections, and $1\frac{7}{8}$ inch wide at the cutting edge. It is ornamented on each face with the same design. At the top of the blade, placed midway between the two projections, is a circle formed of two concentric lines, enclosing a similar line of dots. The space included within the innermost line of the circle is filled with four series of three curved parallel lines, arranged so as to form a cross-shaped object. At the base of each projection is a series of parallel lines, varying in number from three to six, which curve outwards from the base of the projection towards the circle at the middle of the blade. Beneath the circle is the standing figure of an animal with curved horns. Though it does not possess much of the characteristic features of that animal, it is no doubt meant to represent a bull. The bull and all the work of the design, except the punched dots of the circle and a line of dots which follows the outline of the bull on the inner side, are made by engraved lines and not by chisel punching.

Fig. 13. Bronze axe found near Kertch. ($\frac{1}{2}$ linear.)

The projections, to which the name of wings may be given, are a marked feature of this early form of axe. Their object was no doubt to assist in fastening the axe more firmly in the handle, serving the same purpose as the loops so common in other and later forms of axes. This feature, by no means a frequent one, occurs oftener in Italy than elsewhere and is there applied to both flat and socketed axes.

As has already been stated, it is beyond the limits of the present account to enter upon any discussion about the introduction of bronze into Italy or any other part of the world, but perhaps it may be suggested that there were two distinct lines of transmission by which that metal spread from countries further to the north and east into Italy. The one along the course of the Mediterranean, the other from lands abutting upon the Danube, and so up the valley of that river over the Alps into the plain of Lombardy, to spread thence southward. The axe from Kertch affords one piece of evidence in favour of such a supposition, and though no argument can be based upon a solitary occurrence, nevertheless it has its value, and may be of use in the investigation of that very difficult, as it is one of the most enticing, of archæological questions, the original seat and later diffusion and development of the bronze cultivation.

BEYRÛT, SYRIA.

The two axes about to be described were found with two similar near to Beyrût. They differ in one important feature, the one of a broad type is long in

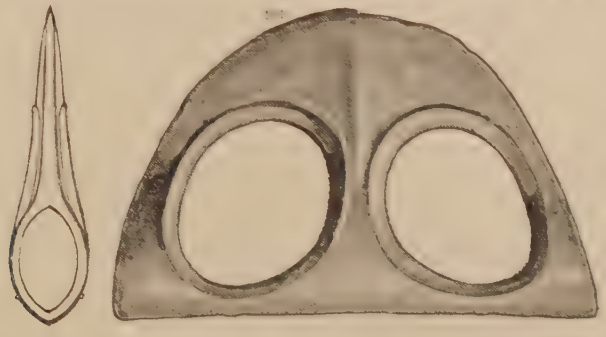


Fig. 14. Bronze axe found at Beyrût. (½ linear.)

proportion to its depth, the other, of a narrow type, is the reverse. I possess other two; one of which, of the broad type, was found near Sidon, and is of a

much lighter fabric than the Beyrût one, the other of the narrow type, very similar in every way to that here figured, was bought at Cairo, and was said to come from Echmîm. Other two, both of the broad type, were discovered in a cave near the village of Esh-Shajara, in Palestine.[a]

The broad axe (fig. 14) is $5\frac{3}{8}$ inches wide, $3\frac{3}{8}$ inches deep, with a socket at the top, 1 inch by $\frac{1}{2}$ inch, and has two eyes in the blade, 2 inches by $1\frac{5}{8}$ inch. It is strongly made, and has a narrow raised rib on each face, which extends from between the eyes down to the edge of the blade. The eyes have a raised rib with a bevelled edge round them. Some remains of the wood of the handle are left in the socket, and upon the oxidized surface of one face is the impression of some woven material, in which it had been wrapped or upon which it had been laid.

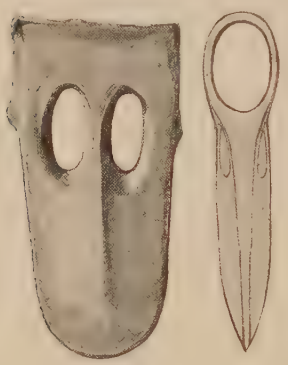


Fig. 15.
Bronze axe found at Beyrût.
($\frac{1}{2}$ linear.)

The narrow axe (fig. 15), which also is strongly made, has, like the other, a rib upon each face. It is $1\frac{1}{4}$ inch wide, $3\frac{7}{8}$ inches deep, the socket being 1 inch by $\frac{5}{8}$ inch, and the eyes $\frac{7}{8}$ inch by $\frac{3}{8}$ inch.

The type is peculiarly a Syrian one, seven out of the eight known to me having been found in that country, and the eighth, supposing it to have been found at Echmîm, may easily have been brought thither from Syria.[b]

The well-known Egyptian axe, which is of a form not very dissimilar, differs from the Syrian type in more than one particular. The two forms are nevertheless so much alike, that the one must be regarded as a development from the other, the Egyptian being most probably the prototype. With the exception of that said to have been found at Echmîm, I am not aware that any other axe of the Syrian type has occurred in Egypt.

UNCERTAIN LOCALITY.

The very remarkable axe (fig. 16) now under notice formed lot 21 at the sale of the Forman Collection by Messrs. Sotheby and Wilkinson, 19th June, 1899. A careful search through Mr. Forman's papers has failed to find any note of where it was found or from whom he got it.

[a] *Quarterly Statement of the Palestine Exploration Fund*, April, 1889, p. 77.

[b] An axe quite similar in form, but varying in the provision for handling, was discovered by M. Tsoundas in a chambered tomb at Vaphio, in Laconia. Perrot and Chipiez. *La Grèce primitive*, p. 978, fig. 553.

It is two-winged, with a provision for handling, placed midway between the edge of each wing. The edges, which are curved, are dissimilar, the one being sharp as if for use, the other having a blunt edge. The socket for the handle, which is very small and not quite round, measures $\frac{9}{16}$ inch by $\frac{7}{16}$ inch. It is closed at the top, through which a flat-headed rivet with a sharp point is passed, to run into the wood of the handle and to strengthen and make firm the hold. The metal, the surface of which is to some extent covered by an olive green oxide

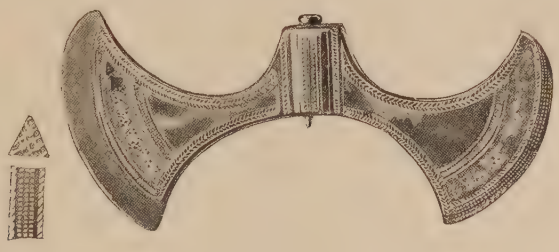


Fig. 16.

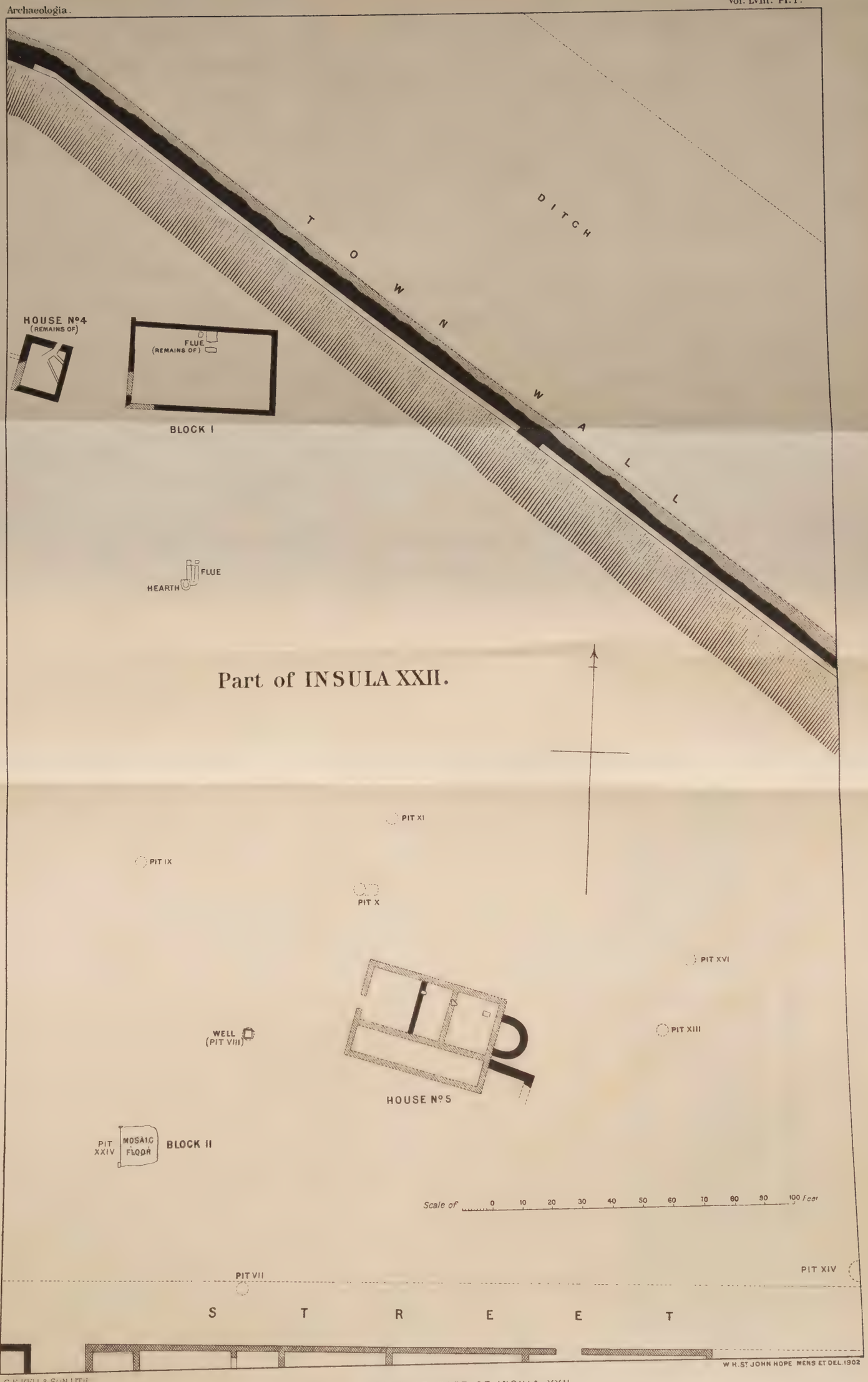
Bronze axe, locality unknown. ($\frac{1}{2}$ linear.)

through which the colour of the metal shows, appears, judging from the colour, to have more tin in its composition than is usual in ordinary bronze weapons and implements. It is of very slight fabric and weighs only $4\frac{1}{10}$ ounces. The length from edge to edge is $5\frac{1}{2}$ inches, the width of the sharp end being $2\frac{1}{2}$ inches, that of the blunt one $2\frac{3}{8}$ inches, the socket is 1 inch deep. The axe is decorated over a large part of the surface including the socket, the design being the same on each face. All the details of the ornamentation, except the grooving on the socket, which appears to have been made in the casting, have been produced by punching, a die having been used in some cases. The decorative work is carried up to the edge on the blunt-ended wing, and to within $\frac{3}{8}$ inch from the sharp edge of the other wing. The pattern consists of a double-corded band in relief, which follows the outline of the axe, except on the socket and the edges of the wings. The edges have a band upon them which is parallel to their curve, consisting of triangular impressions placed in reversed positions each filled with a reticulated figure having three dots upon the lines of the net work, the whole being enclosed within two bands of square indentations, edged on each side by an incused corded line. The socket has two vertical corded lines at the middle with a plain line on each side, beyond which is a corded line between two plain ones.

The decoration, which is very skilfully applied and of an effective and pleasing character, is of an unusual nature, and, so far as I know, without a parallel in the ornamental work of articles of the bronze cultivation.

The instrument can scarcely have been intended to be used in any kind of work, its lightness and delicacy seem to preclude the idea of such an object, though the sharpness of one edge may be thought inconsistent with that view. It was probably intended for a ceremonial or official purpose rather than for any ordinary process of every-day life.

It is unfortunate that it has been found impossible to trace the place of its discovery or even the country from which it comes, nor can I make any probable suggestion with regard to its origin.



C.F. KELL & SON LITH

SILCHESTER. — PLAN OF PART OF INSULA XXII.

II.—*Excavations on the site of the Roman city at Silchester, Hants, in* 1901. *By* W. H. St. John Hope, *Esq., M.A. With a note on the plant-remains of Roman Silchester. By* Clement Reid, *Esq., F.R.S.*

Read 29th May, 1902.

I have the honour of submitting to the Society, on behalf of the Executive Committee of the Silchester Excavation Fund, a full report of the discoveries made during the year 1901. This is also the record of the continued exploration of the site for the twelfth year in succession.

Work for the season was begun on 10th May by Mr. Mill Stephenson, who directed operations throughout until their conclusion on 13th November, with the exception of five weeks in July and August, when Mr. Herbert Jones was in charge. A deep debt of gratitude is due to these gentlemen for the time and trouble they have so freely bestowed upon the work.

The scene of the operations of 1901 was on the north of the modern road which traverses the town, and immediately to the east of *Insulæ* XXI. and XXII., excavated in 1899. The area examined was between 5 and 6 acres.

A large triangle which formed the northern half of the area dealt with proved to be a continuation eastward of *Insula* XXII., as was foreshadowed in our report for 1899 (Plate I.). It contained, however, only two other buildings. The one was a rectangular structure or enclosure (Block I.), 47 feet long and 26½ feet wide, standing east and west close to the town wall, a little to the east of the remains of House No. 4, and containing the wreck of a hearth or furnace against its north wall. The other building was perhaps a small house (House No. 5). It was situated towards the southern boundary of the *insula*, and consisted of a row, 44 feet long, of three chambers with a corridor along the south side, and an added apse at the east end. Another chamber had also been added on the south-east, but this had been completely destroyed with the exception of one wall. It would appear from a series of stone blocks inserted in the cross walls on the line of the

north wall of the apse produced that when the apse was added a narrow strip or aisle was partitioned off along the whole north side of the building. Three stones were found in place, while a bed for a fourth could be traced in the west wall, another stone was found lying loose, and yet another was met with near the bottom of a well (Pit VIII.) hard by. Several of the stones have dowel holes in them.

It is curious that three out of five houses in this *insula* should have had apsidal terminations.

The only other remains found in *Insula* XXII. were a long flue, with a hearth superposed, a little to the south of Block I., and a square patch of red mosaic flooring (Block II.) to the north-west of House No. 5. This must have belonged to some wooden structure, as no remains of walls or foundations could be traced round or near it.

The southern part of the area excavated in 1901 formed a large *insula*, XXVII., containing about $3\frac{2}{3}$ acres (Plate II.). It was separated from *Insula* XXII. on the north by an ill-defined street, and had other streets on its western and southern sides. On the eastern side were found decided traces of a street or lane, but of uncertain width, and not parallel with the street on the western side. The *insula* was not therefore square, its sides measuring respectively: N. 368 feet; S. 348 feet; E. 377 feet; W. 383 feet.

As will be seen from the plan the western half of *Insula* XXVII. is fairly covered by the foundations of three houses.

The northernmost, House No. 1, is one of the most interesting yet laid open in the town, not only from its plan and arrangements and ornamentation, but for the evidence deducible as to its construction, and the way in which it has been more than doubled in size by later additions.

It stood in the north-west corner of the *insula*, with one end abutting on the west street, but separated originally from the street on the north, to which it was not parallel, by an interval of from 30 to 37 feet.

It belongs to the courtyard type and consisted at first of two main ranges of chambers: a northern, extending eastwards from the street for 95 feet; and an eastern, at right angles to the other, and extending from its eastern end southwards for 65 feet and ending in an apse. Along the south side of the northern range was a corridor, returned southwards at each end, on the west to an entrance lobby on the street, on the east to a large winter room attached to the south end of the eastern range. The courtyard thus enclosed on three sides by the corridor faced south.

INSULA XXVII.

STREET

STREET

STREET

STREET THREE

LANE OR

HOUSE Nº 1.

COURT YARD

STOKEHOLE

HOUSE Nº 2

HOUSE Nº 3.

BLOCK I

BLOCK II

BLOCK III.

BLOCK IV.

PIT VII

PIT XIV

PIT XV

PIT XVII

PIT XIX

PIT XX

PIT XXI

PIT XXII

PIT XXV

PIT VI

PIT XVIII

HEARTH

REMAINS OF HEARTH

BUILDINGS HERE

Scale of 0 10 20 30 40 50 60 70 80 90 100 150 200 Feet

C.F.KELL & SON. LITH.

W.H. St JOHN HOPE MENS ET DEL. 1902.

SILCHESTER—PLAN OF INSULA XXVII.

published by the Society of Antiquaries

The house was entered from the street by a lobby (1) 15½ feet square, paved with red tile mosaic and having in its north side a wide doorway into the west wing of the corridor (2). This was 10 feet broad and was paved with drab stone *tesseræ* with red borders and a thin line of red *tesseræ* forming a panel down the middle. The main portion of the corridor (3), which was only 8½ feet wide, was similarly paved. The east wing (4) was paved with the drab *tesseræ* alone, and was only 8 feet wide.

From the fragments of wall plaster found in the corridor, Mr. Fox suggests that the general arrangement of the colouring may have been a series of panels divided by broad vertical red bands, the panels being alternately white with painted draperies, and yellow. There may have been a dado in imitation of pink marble, and a frieze in white ornamented with green circles.

The first of the divisions of the northern range was a passage 6½ feet wide and 19 feet long (5), which also not improbably contained a staircase to an upper story. Nothing remained to show how it was paved. The next chamber eastwards (6) was of some size, and perhaps served as the kitchen. It had a doorway from the corridor, but nothing was found to show the character of its floor or how it was fitted up. Next to the kitchen was a small oblong room (7) paved with drab *tesseræ*. It had a doorway from the corridor, and another opposite opening into an inner room (8) with a cement floor. From each room a doorway led eastwards into the adjoining chamber (9). This had a third doorway in the south-west corner from the corridor, and was paved with drab mosaic; it had an unusually large quarter-round plaster skirting along the walls. Against the south wall was the brick base of a pedestal or altar, and in front of it a worn stone step. The next room (10, 11) was originally subdivided unequally by a cross wall into two smaller rooms, but was afterwards thrown into one and paved with drab stone *tesseræ*. It was entered by a doorway from the corridor on the south and had in its north wall a fireplace. But the most curious feature about the room was the deposit of bones and vessels of pottery under the floor in the angles and along the walls. The original outer room (10) had a pot embedded in the south-west corner, and deposits of bones in the two northern corners. The inner room (11) had along its eastern side a deposit of bones and three pots, and there were two other pots along the north wall to the left of the fireplace. The pots had their mouths flush with the floor and contained nothing but earth. Similar pots, but singly, have been found under like circumstances in other houses in the town, but never before has such a series been found. The deposits of bones were carefully removed by Mr. A. H. Lyell, and submitted to examination by Mr. E. T. Newton, who reports that all the

bones found in the inner room "are referable to very young lambs, and these of small size. Parts of at least two animals are present, one somewhat larger than the other. Limb and foot bones are preserved, as well as a piece of a lower jaw, the latter retaining a milk tooth, from which it is evident that these remains belong to young lambs. With these bones was a single fish vertebra which at present has not been identified." On the bones found in the north-west corner of the outer room Mr. Newton reports that all "belong to birds, and some of them are almost certainly parts of a small race of fowls (*gallus domesticus?*) while others are in all probability parts of pheasants. The greater number of these bones are not fully developed, and consequently cannot be definitely determined, but there is no reason for supposing they belong to other forms than those just mentioned." The bones found in the north-east corner of the same room Mr. Newton identifies as "remains of at least two young lambs, including several limb bones, and lower jaw with milk teeth." There were also "numerous birds' bones, almost certainly parts of small fowls and pheasants, but many of these remains belong to very young birds and cannot be identified with certainty."

The presence of these bones is difficult to explain, especially those of the young lambs. Mr. Fox suggests that the bones of the fowls and pheasants may indicate that the room in which they were found was used as an aviary. The mosaic floors, he points out, could easily be kept clean, and the sunk pots could be so placed to contain the birds' food. In confirmation of this theory I may add that the inner part of the room has a number of notches or chases in the side walls about a foot from the floor which may have been to fix perches in.

The last room of the range (12) was a fair-sized one, entered from the room last described. It had a fireplace in its south wall, and in the middle of the floor was a panel of fine mosaic 6 feet square, bordered with bands of coarse red and drab mosaic and set in a ground of drab *tesseræ*. The fine panel had unfortunately been utterly destroyed.

The first of the chambers of the eastern range (13) was originally about 18 feet square, with a mosaic floor of the same character as room 12. Of the fine mosaic centre only a few *tesseræ* remained. The entrance was near the south-west corner, its position being plainly marked in the corridor by a patch of black *tesseræ* inserted on account of the wearing away of those at first laid down.

Southwards of this room were originally two others, a smaller and a larger. The larger (14) had a fireplace in its south wall and was paved with red mosaic. The smaller (15) was similarly floored, and served as a vestibule between room 13

C. F. KELL & SON, CHROMO-LITH.

GEORGE E FOX, MENS ET DEL 1901

SILCHESTER.- MOSAIC PAVEMENT IN HOUSE Nº I. INSULA XXVII. (½ LINEAR)

Published by the Society of Antiquaries of London.1902.

and the large room (16) which terminated the range. But in the later alterations of the house these two rooms were done away with, for reasons to be described presently.

The large room (16) at which we have now arrived formed, with the nearly circular room (18) south of it, and the large winter room (17) to the west, the principal section of the house. It had in the floor a panel of fine mosaic, 10 feet square, within a frame, as it were, of coarser drab and red mosaic, set in a ground of drab *tesseræ*. The panel was not in the middle, but placed to one side of the room. It was of simple geometrical design, consisting of a circular central panel between four semicircles, all with floral devices, bordered with braidwork, with the interspaces filled with interlacing knots. Though sadly injured in places it was sufficiently perfect to justify our taking it up for preservation.

The position of the pavement shows that it was laid with relation to the winter room on the west, and not to the southern annexe. This winter room (18) was separated from the other by a wide opening paved with coarse red *tesseræ*, upon which stood two square foundations, probably for columns or pilasters supporting the architrave. The room had in the floor a large central panel of fine mosaic set in a red ground, but with the exception of a small fragment at one corner with a bust of a figure of Flora (?), this had been entirely destroyed to enable the plunderers to extract the tiles of the *pilæ* of the hypocaust. The hypocaust, which was of a composite character, was fired from a stokehole on the north, outside the building. The flues were symmetrically disposed round the south, west, and north walls, but there were fewer on the north on account of the entrance doorway there from the corridor. The wide opening on the east of the room prevented any flues being placed on that side save at the ends.

The southern annexe (18), which completed this end of the building, was in plan about three-fourths of a circle nearly 17 feet in diameter within, its depth being 12 feet. Rooms of this unusual form have been met with in other buildings at Silchester, notably in House No. 2, *Insula* I., and House No. 1, *Insula* VIII.; but the ordinary form in Roman buildings in this country is generally semicircular or nearly so. The apse under notice was entered from the room of which it formed part by an opening 10 feet wide, in which was laid, mat fashion, a panel of fine mosaic 3 feet 6 inches wide, to which was adjoined a nearly circular panel of fine mosaic 8 feet in diameter, set in a ground of the drab *tesseræ* which formed the floor of the apse. The design of the panels is shown in Mr. Fox's drawing (Plate III.). The circular piece has unfortunately lost the middle portion, but its unusual shape and the clever design of the fret border seemed to justify its

removal, as well as that of the long panel, for preservation in the Reading Museum. The walls of the apse had been covered with white plaster, with faint traces of yellow lines.

We have now to consider the changes and additions to the house. These additions are so extensive that at first sight they seem to belong to a separate dwelling, but further consideration shows that this is not so.

The first change to notice is the walling up of the doorway from the entrance lobby into the corridor. The lobby was thus cut off from the house, and a new opening seems to have been made in its east side to give access to the courtyard.

The next change was to cut off 13 feet of the western corridor by building a wall across it, and constructing what was perhaps a latrine (19) outside on the east.

The other changes were in the further end of the house. Here the large chamber (13) at the north end of the eastern range was divided by a cross wall, laid quite regardless of the fine mosaic panel in the middle of the floor, which was thus cut in two and practically destroyed. Doorways were then made in each end of the northern half of the room, which now became a passage in continuation of the corridor west of it. To compensate for the loss of so large an apartment the two small rooms (14 and 15) to the south were thrown into the southern half, and their red mosaic pavements continued over the lines of the destroyed division walls. There are indications that a piece was left at each end of the longer wall to serve as a pier or pilaster to carry an architrave or beam across the opening.

The additions consisted, first, in building a series of chambers on the north-east in the space between the street and the north wall of the house produced. But owing to the north wall not being parallel to the street the south wall of the added wing is not in line with the older wall. The addition consisted of a large court, or hall (20), for it may have been roofed in and subdivided by partitions, 42 feet long and 29 feet wide, with a doorway at its south-west corner. Next to it eastwards were three chambers overlapped on the north by a corridor formed within the range. The first was a room (21) 20 feet square, with a floor of *opus signinum*, and doorways in its west, south, and east walls; the next an oblong chamber (22), of which the flooring had been destroyed; and the third another large square room (23), entered from the last at its south-west corner, and warmed by a composite hypocaust. The stokehole of this was in the corridor (24) on the north. Traversing the whole of the southern side of this range of chambers was

another corridor (25), 8 feet wide, paved throughout with coarse red *tesseræ*. At each end the corridor returned southwards. The western return (26) extended along the older part of the house, first as far as a cross wall with a doorway therein, just beyond the doorway of communication between the old and new buildings, and then onwards until it overlapped by a few feet the large square chamber at the end of the first building. Into this room there was probably a door. The corridor ended against a square winter room (27) of the same date, which abutted somewhat clumsily against the older room (16) west of it. Into this it apparently opened. It had a central panel of fine mosaic, of simply geometrical design, part of which remained, enclosed as it were by a frame of red and drab bands and set in a ground of coarse red *tesseræ*. The hypocaust of this chamber was worked from a stokehole outside it on the north side, close to the junction with the corridor wall.

Near the centre of the main division of the corridor and on its south side a doorway opened into a square room (28) with a pavement of red *tesseræ* and a small central geometrical panel of fine work, most of which had perished. Chambers in a like position have been met with in several other houses at Silchester.

The eastern return of the corridor (29) communicated with a block of three rooms (30, 31, 32), with a fourth (34) on the west against which the corridor abutted. In none of these chambers was there any trace of a floor, but in the northernmost (30) a most interesting discovery was made to which reference will be made presently.

Besides the additions to the house which have just been described, there were others filling up the space between its north wall and the street. Starting from the north-west corner of the *insula* were what may have been two yards, one long and narrow (34), the other a large square (35).

Next to the latter, and communicating with it by a door, there was towards the north a room (36) floored with red *tesseræ*, and south of it a smaller room (37) similarly paved, closed on the east by a wooden partition. This separated it from a pentise (38) paved with red *tesseræ*, extending along the house wall to the added block beyond, into which it opened by a doorway. North of the pentise was an open court (39) with a wide opening on the east into the hall or court (20) forming the chief member of the added block.

From this description of the building we must now turn to an interesting question as to its construction.

It has been noticed from time to time during our excavations at Silchester

that the floors of some of the buildings are covered here and there with a more or less regular bed of clay, but no satisfactory explanation of its presence has been forthcoming.

In excavating the house just described, the occurrence of such a regular layer or deposit of clay was so marked over the whole area of the older portions as to suggest a possible origin for it. Over the rooms it was usually about 18 inches thick, and immediately upon it were numerous fragments of roofing tiles or slates. On the line of the corridors the thickness of the clay was only 6 inches. For my own part I have long been convinced that a large number of the buildings at Silchester were of half-timber construction, and that only in the case of rooms warmed by hypocausts, which are usually placed at the ends or sides of the houses, were the walls carried up to their full height in masonry to avoid risk of fire from the flues built into them. This is also borne out by the greater thickness of the walls of these winter rooms.

During last autumn, while Mr. Stephenson and myself were bicycling about the surrounding district, in the neighbouring parish of Hartley Wespall we came upon a cottage in an advanced state of ruin which afforded all the necessary *data* for the problem we were interested in. The cottage was of no great age, perhaps of the 17th century, but its construction was evidently traditional, and characteristic of a district where building stone is non-existent and timber abundant, exactly the conditions that prevailed at Silchester. The lowest courses of the walls were of brick. On them rested a timber framework, pinned together, filled in in the lower story with lathing covered with clay, for which brick had been substituted in places, and in the upper story with wattlework covered with clay. The ground floor was paved with brick, and the roof covered with thatch. The doors and windows had already been taken out. The filling in of the front of the house had for the most part collapsed on to the floor, and the remainder was ready to follow. When the timber framing has been removed for spoil, all that will remain of the cottage will be its brick floor buried beneath a layer of broken bricks and lumps of clay and rotting thatch; and a few years of rain and frost will reproduce almost exactly what we have found in our Silchester house. Here we have the low dwarf walls of flint masonry, the tessellated floors, so valueless as spoil, and the layer of clay from the filling in, thick over the lofty rooms and thin over the low corridors, and strewn with the fragments of the broken roofs. But there is stronger evidence to come. In following up the walls of the eastern chambers of the addition to the house, there were revealed in the northern room (30) strong traces of its destruction by fire,

chiefly in the form of charred timbers and pieces of stamped clay which had been converted into brick by the heat and so preserved. Moreover, these pieces of clay had evidently been fixed to wattlework, the impress of which was plainly visible at the back. The front had been stamped with a herring-bone pattern from a wooden stamp, which had sometimes been impressed heavily, sometimes lightly, and hence a difference in the appearance of the fragments.[a] The resemblance between these pieces and the material of the ruined cottage was so close, that Mr. Fox and Mr. Stephenson subsequently raided the cottage and carried off for comparison the fragments exhibited.

Fig. 1. Stamped Clay from Room (30) House No. 1, *Insula* XXVII.

As the walls of the earlier Silchester houses were 18 inches thick, the wooden framing must have been of substantial construction and formed of large timbers, since the door frames and their sills all formed part of it. In the house under notice, the exact sizes of the sills could in many cases be recovered from the casts of them in the mosaic floors. They were formed of wooden slabs $4\frac{1}{2}$ feet long and 18 inches broad, and 3 inches thick, and the architraves were of course framed into them.

[a] Pieces of clay similarly stamped and also bearing the impress of wattlework on the back have been found in one of the camps in the Roman wall in Germany. See the engraving in *Der Obergermanisch-Raetische Limes des Römerreiches*, Lieferung 16. Kastell Pföring, 23.

From House No. 1 we may now pass to the consideration of House No. 2, which stood directly south of it.

The architectural history of this house is very like that of the other. An earlier courtyard house of similar arrangement and nearly the same size has been enlarged by subsequent additions, and no doubt converted into a more comfortable dwelling.

The house was originally entered from the street on the west of it by a wide opening flanked by pilasters, and probably of some architectural pretensions, which gave access to a large square lobby (1) floored with red *tesseræ*. From this a doorway led northwards into a corridor (3) paved with red mosaic. In the angle formed by lobby and corridor was a small porter's lodge (2), with its entrance from the latter.

The corridor extended northwards for 53 feet, and then returned eastwards through a doorway or curtained opening for another 50 feet, it then again turned southwards for 25 feet.

The house contained, like House No. 1, a northern and an eastern range of chambers. The northern consisted of a winter room (4), warmed by a composite hypocaust; a passage (5) ; and three other rooms (6, 7, 8), of which the first had a fireplace in its south wall.

The hypocaust of the winter room was fed from a stokehole on the north, but the floor it supported had been utterly destroyed in order to extract the tiles and *pilæ* of the hypocaust itself. This room had a doorway from the corridor and another entrance on the east from the passage next it.

This passage (5) had an *opus signinum* floor and painted walls, and probably doorways at each end, though only the southern remained. Under the floor was found a line of older wall, and also a pit (No. XXI.) 17 feet deep, which yielded much broken pottery and two complete vessels.

The remaining rooms of the range and all the others in the older part of the house had floors of the usual coarse red-tile *tesseræ*.

The eastern range contained two rooms only (9, 11). The northernmost (9) had in the north-east corner an inner chamber or closet (10).

There was probably an upper story to the house, but it is difficult to locate the staircase.

It will be observed that like House No. 1 the house under notice had at first only one winter room, though another was provided with a fireplace. An additional series of chambers was accordingly built on to remedy the defect.

The first alterations to be noted are also paralleled by those in House No. 1.

They consisted in building two cross walls across the western wing of the corridor to make a small room (3*) in the middle of its length, with a door into it from the courtyard. Another doorway from the courtyard was also made into the remnant of the corridor to the north. To what use the southern end of the corridor, together with the entrance lobby and porter's lodge, was put must be a matter of conjecture. There is also no indication how the house was henceforth entered from the street.

Another alteration, though not necessarily next in date, was the addition of an external corridor (12) on the east of the building. It seems to have been somewhat carelessly planned; the southern end being built obliquely, and the northern extremity carried beyond the line of the house. It has been subsequently subdivided by cross walls.

But the most noteworthy addition to the house is the group of winter rooms at the south end of the eastern range. These are three in number, but the easternmost (19) seems to have had no connection with the others and was clearly added later.

The other two lay, as it were, on either side of the line of the western wall of the east range produced. On the east side of this line a narrow lobby or passage (13) was built out, and beyond it a room (14) about 22 feet square. This overlapped the range by a few feet on the east to allow of the stokehole (15) of the hypocaust, which was in the north wall, being worked from outside the building. The other room (16) extended as far south as the other, but its width was only $16\frac{1}{2}$ feet; the eastern wing of the inner corridor was therefore prolonged to meet it (17), no doubt to give access to it. The hypocaust of this room was in communication with the other, and so one stokehole served the two. Both were of composite character, but the *pilæ* of the western room had been carried off as spoil, with much of the material of the blocks. In the large room the bases of the *pilæ* remained, formed of round tiles 8 inches in diameter. Isolated examples of these circular tiles have often turned up in previous years, but this is the first out of a large number of hypocausts in which they have been found in place as *pilæ*. The north-east corner of this hypocaust contained a novel feature in the form of a sloping flue built of the usual box-shaped tiles.

The third winter room (19) was about the same size as the westernmost, and was built on to the central one in just the same way. In order to reach it the stokehole of the large hypocaust was enclosed (15) and then a narrow angular passage (18) built outside it, extending from the south end of the added eastern corridor to the middle of the north side of the new room. There must have been a way

across this passage to the enclosed stokehole. The hypocaust of the new room was also of composite character, with a central passage filled originally with circular tile *pilæ*, but the passage has subsequently been narrowed by adding to the side blocks and consequently reducing the number of *pilæ*. This hypocaust had its stokehole on the east within a large enclosure (20), which was probably roofed in as a wood store. In the north-west corner of it was a large raised block with a surface of burnt tiles, as if it had formed the floor of an oven.

The eastern end of the woodshed, as will be seen from the plan, overlaps one corner of an earlier enclosure (Block III.). This was roughly a square of 40 feet, with a narrow strip cut off along one side. It may have been a stable, but had evidently been destroyed before the woodshed was built over it.

One other addition to House No. 2 remains to be noticed, the corridor (21) which traversed the whole of the north wall. This could only be traced by its gravel foundations.

Close to the north-east corner of the house, and separated from it by an interval of about 2 feet, was a building (Block I.) which appears to be contemporary with the additions described above.

It consisted of two chambers built end to end, forming a block standing east and west. The easternmost chamber was built first, and was about 19 feet long and 17 feet wide. The west wall was 18 inches thick, the south and east walls 28 inches thick, and the north wall 30 inches thick. This last had been inadvertently built over a large hole filled with loose rubbish. To counteract any possible weakness there was therefore built into the face of the wall a segmental arch of tiles $10\frac{1}{2}$ feet in span. Buttresses were also added at the northern ends of the east and west walls and the south end of the east wall. The room was floored with *opus signinum*, and had at each end the rubble base of a pilaster or pedestal from 3 to $3\frac{1}{2}$ feet square. There were traces of a wide entrance in the south wall.

The westernmost chamber was built up against the other with straight joints. It was $21\frac{1}{2}$ feet long and $17\frac{1}{2}$ feet wide, with walls only about 2 feet thick. It was floored with *opus signinum*, and along the east end was a bench or counter of masonry. The entrance was in the south wall.

What this building can have been for is a matter of surmise.

A little to the east of Block I. were uncovered the foundations of a large oblong structure or enclosure (Block II.) $43\frac{1}{2}$ feet long and about 22 feet broad, which stood obliquely with respect to the main lines of the adjoining houses. Its use is purely conjectural.

Block III. has already been noticed.

House No. 3 stood in the south-west corner of the *insula*, from which it extended northwards over 130 feet to within a short distance of House No. 2. It belonged to the corridor type, having a central row of chambers, with a broad corridor, about 11 feet across, between it and the street, and a narrower corridor, only $6\frac{3}{4}$ feet wide, on the east. The northern end of the house has been destroyed. Attached to its north-east corner there had been a large oblong enclosure, but this was demolished in later times and a small square structure built athwart the gravel foundations of its south wall. Some of the chambers and the eastern corridor retained traces of floors of plain red or drab mosaic. The southern end of the house is very confused. There seems to have been a wide entrance into it from the street on the west, but the part of the building into which it opened has been partially cleared away, and its site covered with a series of furnaces; the wreck here, however, is too complete to enable anything definite to be made out. On the north-east of this part was a hypocaust built up with rubble blocks. There were some indications to the east of some building along the street.

The wall here bounding the *insula* on the south could be traced on this side for a distance of 304 feet from the south-west angle. It then returned northwards for a little distance, but not quite at right angles to the street, with what may be a series of buttresses on its west side, but there was no corresponding wall further east, nor anything beyond, except a gravel foundation running in a different direction. In the intervening ground was the well-preserved base of a hearth, and near it the fragment of another.

Near the middle of the southern border of the *insula* was the only other building in it of which any definite traces remained. It consisted of an oblong structure (Block IV.) standing somewhat obliquely to the line of street. It was subdivided unequally by a wall, and the lesser division was again subdivided by a wall with a central doorway. There was nothing to show how the building was paved, or for what it was used; but the walls were well built of flint rubble, with tile quoins.

As there remained a long strip of ground between the street south of *Insula* XXVII. and the modern road, this too was excavated, but without any great results. The discoveries made will more properly be described when the *insula* to which they belong shall have been excavated.

Turning to the objects found during the excavations, mention must first be made of the architectural remains.

These are unfortunately few in number, being confined to two decayed stone finials, and a fragment of the arch of a niche or recess. The latter, which was

found in a trench in *Insula* XXII., has the soffit and side ornamented with foliage and scroll work, and in the spandrel a figure of a man (fig. 2).

Fig 2. Fragment of arch of a niche or recess, found in *Insula* XXII., side and front views. (¼ linear.)

Another architectural fragment of considerable interest is one side of an ordinary flue tile found in *Insula* XXVII., on which the maker has not only

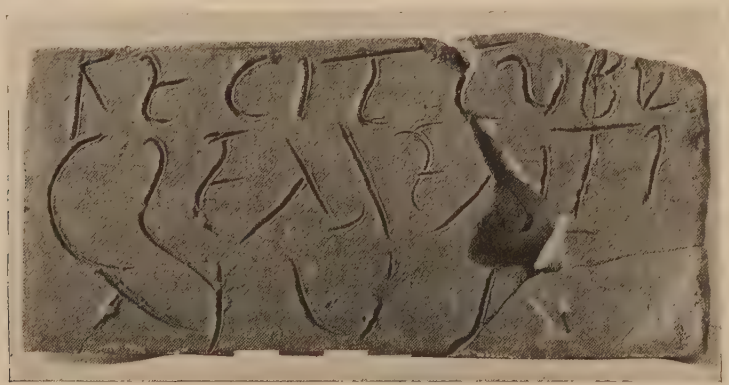


Fig. 3. Inscribed flue tile found at Silchester. (¼ linear.)

inscribed his own name, but the name of the thing he had made, *Fecit tubum Clementinus* (fig. 3).

This is another of a number of similar proofs that some, at any rate, of the people living in or near *Calleva*, and they of the working classes, wrote Latin, even if they did not speak it, though the latter is more likely.

Another tile was found bearing upon it certain lines, which had been drawn upon the clay while soft with the maker's finger or a stick. One corner has been broken off and lost, but there can be no doubt that, when whole, the lines were arranged upon the tile as in the accompanying diagram (fig. 4). As the lines are too shallow to serve as a key for mortar, and were clearly not for any ornamental purpose, they were probably drawn for playing some game.

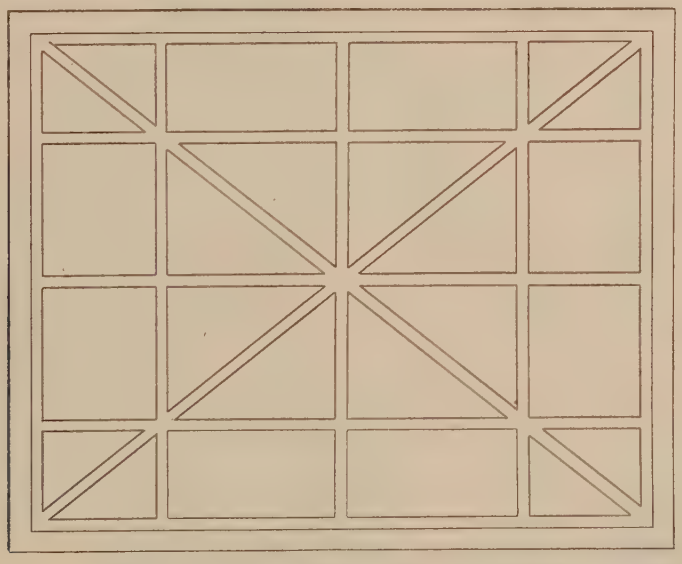


Fig. 4. Diagram of lines on a tile, perhaps for use as a gaming-board. (¼ linear.)

The lines to a certain extent resemble those for playing Nine Men's Morris, and the tile was perhaps used as a board for a similar game to that alluded to by Ovid:

> Parva tabella capit ternos utrimque lapillos;
> in qua vicisse est, continuasse suos.[a]

The contents of the pits have produced as usual some interesting and unusual objects.

[a] *Ars amatoria*, iii. 365. Compare also *Tristia*, ii. 481. For references to these quotations I am indebted to Mr. A. R. Goddard.

Pit VI. yielded, amongst other things, a very perfect axehead, a pewter jug with ornamented handle, and the iron tyres of a pair of wheels 43 inches in diameter. These tyres are $1\frac{1}{4}$ inch wide and 1 inch deep, and are well preserved, one being complete, and the other broken in one place only. From the absence of nail holes it is evident that they were shrunk on to the wood in the way still usual. Of the wheels no remains were found.

Pit VIII., in *Insula* XXII., turned out to be a well 21 feet deep, lined with square wooden framing, from which we recovered, from beneath the large stone previously mentioned, two whole vessels of pottery, a pewter dish with flanged edge, of a type similar to those found in 1897 by the Rev. G. H. Engleheart at Appleshaw,[a] and a large pewter bucket. This last is a most unusual find.

Pit XIV., which was 20 deep, was singular in having at the bottom a small dip hole, 2 feet in diameter, the sides of which were strengthened by short stakes.

Pit XVI. yielded as many as nine whole pots from a layer of gravel about 15 feet down. Pit XXIV. also yielded six vessels from a similar layer of gravel at a depth of 14 feet.

Pit XXV. proved at a depth of 14 feet to be a square lined well, which went down 10 feet further. Besides a black inscribed pot, a Samian dish, and a vase of Caister ware, it yielded an iron hook, perhaps a fire hook, an iron hoop of a small barrel, and an iron staple, which for perfection of preservation for their date it would be hard to find the equals.

There are a number of other interesting iron things to add to the remarkable collection of tools and implements in the Reading Museum, as well as the usual odds and ends in bronze, bone, leather, glass, etc. One piece of glass is engraved with a fish and a palm branch, both undoubted Christian emblems, and traces of letters (fig. 5).

Fig. 5. Engraved Glass with Christian emblems. (½)

The coins do not call for any special notice; the only one of any particular interest being a gold plated British one of the first century, a contemporary forgery.

There is yet one other matter to which to call attention, the continuance of the investigation begun in 1899 for the recovery of Romano-British plant remains. It will be remembered that last year Mr. Clement Reid, F.R.S., was able to lay before the Society a list of nearly one hundred species of plants, the evidence of which had

[a] *Archaeologia*, lvi. p. 11, fig. 8.

been recovered from the pits and wells met with during our excavations at Silchester. This evidence is dependent, firstly, upon most careful precautions being taken to obtain uncontaminated material, and, secondly, upon the washing and patient examination of large quantities of the material so collected. This collection and examination have been undertaken by our colleague Mr. A. H. Lyell, and the result of his labours have been summarised in the appended note by Mr. Clement Reid, to whom we are again indebted for his very kind help.

The accompanying block-plan (fig. 6) shows the progress made in the excavation of the site.

Fig. 6. Block-plan of Silchester, showing portions excavated down to the end of 1901.

Notes on the Plant-Remains of Roman Silchester. By Clement Reid, *Esq. F.R.S.*

The examination of the material collected from the pits during the season 1901 by Mr. Lyell has shown that the same plants occur again and again, only four additions being made to the list, viz.:

Caltha palustris, *L.* (Marsh Marigold).
Polygonum Convolvulus, *L.* (Black Bindweed).
Chenopodium rubrum, *L.* (Goose-foot).
Urtica urens, *L.* (Nettle).

Again I find an exceptional number of seeds of poisonous plants in these wells, hemlock in particular occurring abundantly in several gatherings, and belladonna in three of them.

There is still the same entire absence of many of our commonest weeds, the dandelion, camomile, daisy, white dead-nettle, and all the veronicas being absent in the true Roman deposits; though three shallow excavations in Silchester yield numerous seeds of *Veronica hederæfolia*.

The details of the plants found are as follows:

Contents of a pot, 3 feet below surface, and showing signs of worm borings.

Veronica hederæfolia, *L.*

Probably post-Roman.

Insula XXII. Pit VII. on Street. At 3 feet from surface.

Veronica hederæfolia.
Labiate. (?)
Chenopodium Bonus-Henricus.
Urtica dioica.
Triticum sativum.

Probably post-Roman.

Pit VII., E. side, at 12 feet 6 inches, "D" and "G"; also at 15 feet deep, "E."

Sambucus nigra.

Insula XXII., Pit VIII. (a well), at 18 feet deep.

Ranunculus repens.
Brassica (not B. alba).
Senebiera Coronopus.
Lychnis alba.
Stellaria media.
Spergula arvensis.
Malva sylvestris.
Malva rotundifolia.
Linum usitatissimum. (?)
Rubus fruticosus.
Conium maculatum.
Sambucus nigra.
Valeriana officinalis.
Cnicus lanceolatus.
Solanum Dulcamara.
Atropa Belladonna.
Lamium purpureum.
Chenopodium Bonus-Henricus.
Polygonum Aviculare.
Rumex.
Urtica dioica.
Corylus (?)
Triticum sativum.

Contents of pot from Pit VIII.

Malva sylvestris.
Conium maculatum.
Urtica dioica.

From two whole vessels, found in Pit VIII., 21 feet deep, quite at bottom of well.

Sambucus nigra.

Insula XXII. Pit IX., at 12 feet deep.

Chenopodium Bonus-Henricus.
Polygonum Convolvulus.
Triticum sativum.

Insula XXII. Pit X., at 8 feet.

Chenopodium Bonus-Henricus.

Insula XXVII. Contents of three pots from Pit XV.

Ranunculus Sardous.
Thlaspi arvense.
Prunus.
Rubus fruticosus.
Conium maculatum.
Sambucus nigra.
Cnicus lanceolatus.
Atropa Belladonna.
Prunella vulgaris.
Lamium purpureum.
Chenopodium Bonus-Henricus.
Rumex, 2 sp.
Corylus Avellana.
Carex.

Insula XXVII. Contents of black pot from bottom of Pit XVII., at 17 feet.

Ranunculus Sardous.
Stellaria media.
Stellaria graminea.
Rubus fruticosus.
Bryonia dioica.
Conium maculatum.
Sambucus nigra.
Valeriana officinalis.
Lamium purpureum.
Chenopodium Bonus-Henricus.
Urtica urens.
Carex, 2 sp.

Insula XXVII. Pit XVIII., 8 and 9 feet deep.

Caltha palustris.
Ranunculus Flammula.
Ranunculus repens.
Ranunculus Sardous.
Thlaspi arvense.
Lychnis alba.
Stellaria media.
Rubus fruticosus.
Potentilla Tormentilla.
Conium maculatum.
Sambucus nigra.
Valeriana officinalis.
Atropa Belladonna.
Lamium purpureum.
Chenopodium Bonus-Henricus.
Chenopodium rubrum.
Rumex obtusifolius.
Urtica dioica.
Urtica urens.
Carex.
Triticum sativum.

Insula XXVII. Pit XIX., 8 to 9 feet deep.

Fumaria officinalis.

STONEHENGE.–VIEW OF THE "LEANING STONE" BEFORE IT WAS SET UPRIGHT IN 1901.

Published by the Society of Antiquaries of London, 1902.

III.—*Recent Excavations at Stonehenge.* *By* William Gowland, Esq., *F.S.A., F.I.C., Associate of the Royal School of Mines; with a Note on the Nature and Origin of the Rock-fragments found in the Excavations.* *By* Professor J. W. Judd, *C.B., LL.D., F.R.S., F.G.S.*

Read 19th December, 1901.

Fig. 1. General View of Stonehenge after the "leaning stone" was set upright.

The fall of two of the stones of the outer circle of Stonehenge, No. 22 and its lintel No. 122,[a] on the last day of the century, directed the attention of the public, and especially of archæologists, in a very forcible manner to the insecure position of other stones in this venerable monument. At a meeting of the Council of this Society soon afterwards a resolution was passed and sent to Sir Edmund Antrobus, the owner of Stonehenge, expressing their desire to co-operate with him in any operations which might be advisable for its preservation. Sir Edmund accepted the offer, declined any pecuniary aid, and invited the Society to form, together with the Wiltshire Archæological Society, and the Society for the Protection of

[a] See General Plan, Plate VII. This plan is based partly on that given in Professor W. M Flinders Petrie's *Stonehenge: Plans, Descriptions, and Theories* (London, 1880), and partly on my own surveys made after the "leaning stone" had been set upright.

Ancient Buildings, a small committee to advise him as to the work required for the conservation of the monument and the order in which it should be carried out.

The committee met in these rooms on the 26th March last, and again at Stonehenge on the 12th April, under the presidency of Lord Dillon, our President. On the latter occasion a very careful examination was made of the monument, special attention being given to the stones which were in the most critical condition and to those which had fallen in recent times. As the result of their deliberations, the following resolutions were passed and communicated to Sir Edmund Antrobus with a recommendation that the leaning stone, Plate IV. and fig. 2,[a] No. 56 on Professor Flinders Petrie's plan of 1880, be first dealt with:

RESOLUTIONS.

(1) That this committee approves of the suggested protection of Stonehenge by a wire fence not less than 4 feet high, following on two sides the existing roads and crossing on the west from the 331-foot level on the north road to the 332-foot level on the south road shown on the O.S. map (1-2,500). Wilts. Sheet LIV. 14.

(2) That the committee recommends, without prejudice to any legal question, that the local authorities be requested to agree to divert the existing track-way or ridge-way from Netheravon, now passing through the earth circle so as to pass from the 302-foot level to the 331 and 332-foot levels in the O.S. map immediately west of Stonehenge.

(3) That stones 6 and 7 with their lintel, and stone 56 (according to the numbering on Mr. Petrie's plan) be first examined, with a view of maintaining them in a position of safety.

(4) That, in the opinion of this committee, stone 22 should be replaced, stone 21 be made safe, and the lintel of 21 and 22 be replaced in the most safe and conservative manner. The committee also recommends the re-erection of stones 57 and 58 and their lintel 158.

(5) That the instructions to custodians already in force be approved with a few suggested alterations.

(6) That this committee feels that it is impossible to overstate the value of the assistance which the county council, the district council, and the parish council of Amesbury can give to the efforts made to preserve this unique monument.

(7) That these resolutions be sent to Sir Edmund Antrobus, with the earnest thanks of the committee for the part he is proposing to take in the preservation of Stonehenge, and that it be left to him to communicate them to the Press.

As regards the first I may say, that after having worked among the stones daily during September and part of October last, I have come to the conclusion that without the enclosure there could be no efficient preservation of the monument, considering the changed conditions brought about by the establishment of the large military camp in the neighbourhood.

[a] Figs. 2, 4, 5, 6, and 27, and Plate IV., by the kind permission of Miss Clarisse Miles, are taken from her excellent series of photographs of Stonehenge.

As regards the second, I think it will be admitted by all who desire the preservation of Stonehenge in its entirety, that it is greatly to be deplored that

Fig. 2. View of the "leaning stone" showing its inclination, and its position relative to the "blue stone" monolith.

a trackway for wheeled traffic should exist through the monument between the

rampart and the stones. And I may add that it is, to say the least, astounding that the diversion of that roadway should be opposed by any archæologist.

As regards the third, I can assure you that the hitherto leaning stone has now been made safe for all time.

That this leaning stone, said to be the largest native monolith in Britain, should be set upright was imperative, as it has three horizontal fissures of unknown depth extending almost right across its broad face. As these are on the upper side, fully exposed to the weather, they must, by the action of rain and frost, have been steadily deepening more and more year by year, so that the breaking off of the upper part of the stone was merely a question of time.

The necessity for raising it was further emphasized by the fact that its inclination from the perpendicular had been gradually increasing. In 1660 its angle of inclination was 75°, in 1720 70°, in 1870 66°, and in the present year (1901), before the operations were commenced, I found it to be only 60·5° (Fig. 2.)

It was my privilege to be appointed as your representative to conduct the exploratory work, an account of which I will now endeavour to lay before you as briefly as possible.

Mode of Conducting the Excavations.

Before proceeding with the excavations, a datum line passing through the highest point of the surface of the ground to be excavated was carefully determined, and from this line the vertical position of each layer of material removed from the various excavations was observed and recorded. This was rendered necessary by the irregular contour of the ground surrounding the stone.

The exact level of this line was then ascertained by levelling up to the bench mark (338·9) of the Ordnance Survey on stone No. 16, so that at any future time the depth at which any of the objects were found can be accurately referred to, no matter whatever changes occur in the ground level. It was found to be 1 foot 5 inches below the bench mark and hence 337·4 above the sea level.

The position of the objects found was determined by means of a registering frame divided into 6 and 12 inch, and a vertical rod divided into 6 inch spaces.

The frame and rod are shown in fig. 3.

The frame, it will be seen, consists of two longitudinal and two transverse planks of deal.

The longitudinal and transverse pieces are pierced with holes at intervals

to allow them to be adjusted to suit excavations of different areas. They were held in position by pins passed through the holes.

The long sides are marked at intervals of one foot by letters, each one foot length having its distinctive letter. The transverse pieces are similarly divided and marked.

It is hence evident that a letter from either of the side pieces, together with one from either of the cross pieces, indicates definitely the position of any square foot of area in a horizontal plane within the frame.

The vertical rod is marked with numbers instead of letters, each number representing a 6-inch vertical space.

By combining one of these numbers, with two of the letters indicating a square foot of horizontal area, the exact position of a space 12 inches by 12 inches by 6 inches in any part of the excavation is accurately registered.

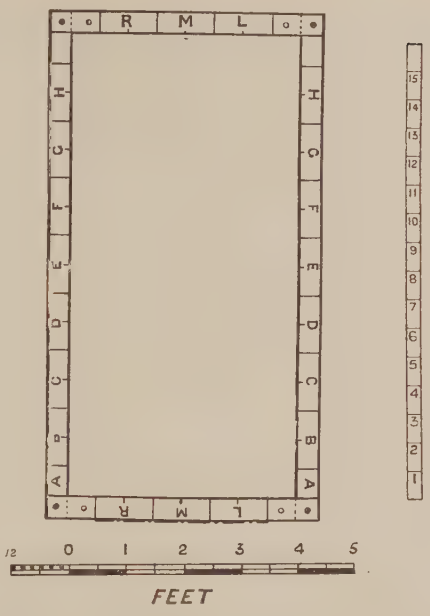


Fig. 3. Registering frame and vertical rod.

Each plot of ground excavated was marked with a distinctive Roman numeral See plan of the excavations (fig. 7).

The positions of the objects found were thus accurately recorded without difficulty.

For example, an object in Excavation III., Division CM and Layer 5 would be registered III. 5 CM, which signifies that it was found in Excavation III. in the fifth 6-inch layer from the datum line, and in the square situated 2 feet from the end and 1 foot from each side of the digging.

It will thus be seen that the whole of the objects unearthed could, if necessary, be put back into the exact positions in which they were found.

Each excavation was made of a definite area. Its position was accurately laid down with reference to the middle line of the stone at the datum line and plotted on the plan.

Before commencing to dig, the registering frame was fitted in a horizontal position around the area to be excavated, and at the level of the datum line, and the space within it pegged out and divided by means of cords and iron pins nto strips one foot wide.

The frame in position at Excavation VI. is shown in fig. 4. The turf was

taken off in one foot squares, and was subsequently examined. The material

Fig. 4 The registering frame in position around Excavation VI.

from each excavation was taken out in 3 or 6-inch layers of approximately one square foot in area, except, in one or two places honeycombed with rabbit burrows

when it was removed in strips one foot in breadth, and in the solid chalk rock when the digging was carefully watched.

In tunnelling beneath stone No. 55*a* Excavation Q, the positions of the objects were determined by inspection, one side of the registering frame being placed along the side of the stone.

The material was removed in buckets and carefully sifted through a series of sieves of 1 inch, $\frac{1}{2}$ inch, $\frac{1}{4}$ inch, and $\frac{1}{8}$ inch mesh, in order that no object, however small, might be lost.

Fig. 5. The "leaning stone" with the cradle and cables attached.

The excavations were made, as a rule, in the order shown by the Roman numerals in the plan (fig. 7), and as soon as each was completed, concrete to a greater or lesser amount was put in before the next was proceeded with.

The setting up of the stone is, however, so intimately connected with the excavations that I propose first to give you an outline of the operations by which it was accomplished. The method adopted for setting it upright was devised by Mr. Carruthers; the engineering operations were superintended by Mr. Blow; my special work being the superintendence of the excavations.

A wooden frame or cradle of stout timbers was first fitted carefully to the

stone as shown in figs. 5 and 6. This was connected by means of strong cables with two powerful winches about 45 feet distant on the south-west side.

The operations of raising the stone were very cautiously and slowly carried out. It was raised only two or three inches at a time, and at each interval was shored up with the larch struts seen in fig. 6.

After it had been set upright in a south-west direction, its inclination to the south-east was rectified by means of a hydraulic jack working against the lower

Fig. 6. The "leaning stone" set upright.

side of the cradle, until the sloping side of its base practically rested on its old supporting stone. (See fig. 11.)

The raising of the stone was begun on September 18th, and completed on September 25th.

The imposing height of this grand pier of the central trilithon is well seen in fig. 6, which represents it immediately after it was set upright, and in the general view of Stonehenge (fig. 1) as it now appears.

Here I may say that the excavations which were made, were only those which were necessary for the engineering operations of raising the stone. In addition to those immediately around the stone, six holes, A to F, shown on the general plan (Plate VII.), were dug for the insertion of the lower ends of the timber struts used for shoring up the monolith whilst it was being raised. Two shallow cavities were also dug for the reception of the winches.

No digging was carried on except in the presence of Mr. Blow, Mr. Stallybrass, or myself, and I made a point of being at the excavation before the work of each day began, and remaining until it was finished.

A watchman was on duty at night to ensure that the excavations should not be tampered with.

Rocks of which the Stones consist.

Before proceeding to describe the excavations, it may be well to consider briefly the chief kinds of rock of which the stones of Stonehenge consist, and of which chippings and fragments[a] were so numerous in the ground excavated.

The large monoliths of the outer circle, and the trilithons of the horse-shoe are all sarsens. (See general plan, Plate VII.) These sarsens in their composition are sandstones, consisting of quartz-sand, either fine or coarse, occasionally mixed with pebbles and angular bits of flint, all more or less firmly cemented together with silica. They are the relics of the concretionary masses which had become consolidated in the sandstone beds that once overlaid the chalk of the district, and had resisted the destructive agencies by which the softer parts of the beds were removed in geological times. They range in structure from a granular rock resembling loaf sugar in internal appearance to one of great compactness similar to and sometimes passing into quartzite.

The monoliths and trilithons all consist of the granular rock. The examples of the compact quartzite variety, of which many were found in the excavations, were almost without exception, either hammerstones that had been used in shaping and dressing the monoliths, or fragments which had been broken from off them in these operations.

The small monoliths, the so-called "bluestones," which form the inner circle and the inner horseshoe, are, with the undermentioned exceptions, all of diabase

[a] I am indebted to the kindness of my friend Professor Judd, Dean of the Royal College of Science, for the identification of the specimens of rock found in the excavations. The above is merely a rough summary of the more important kinds. For a complete account of them the reader is referred to Professor Judd's note (*post*).

more or less porphyritic. Two are porphyrite (formerly known as felstone or hornstone). Two are argillaceous sandstone.

Mr. William Cunnington, F.G.S., in a valuable paper, "Stonehenge Notes,"[a] records the discovery of two stumps of "bluestones" now covered by the turf. One of these lies in the inner horseshoe between Nos. 61 and 62, and 9 feet distant

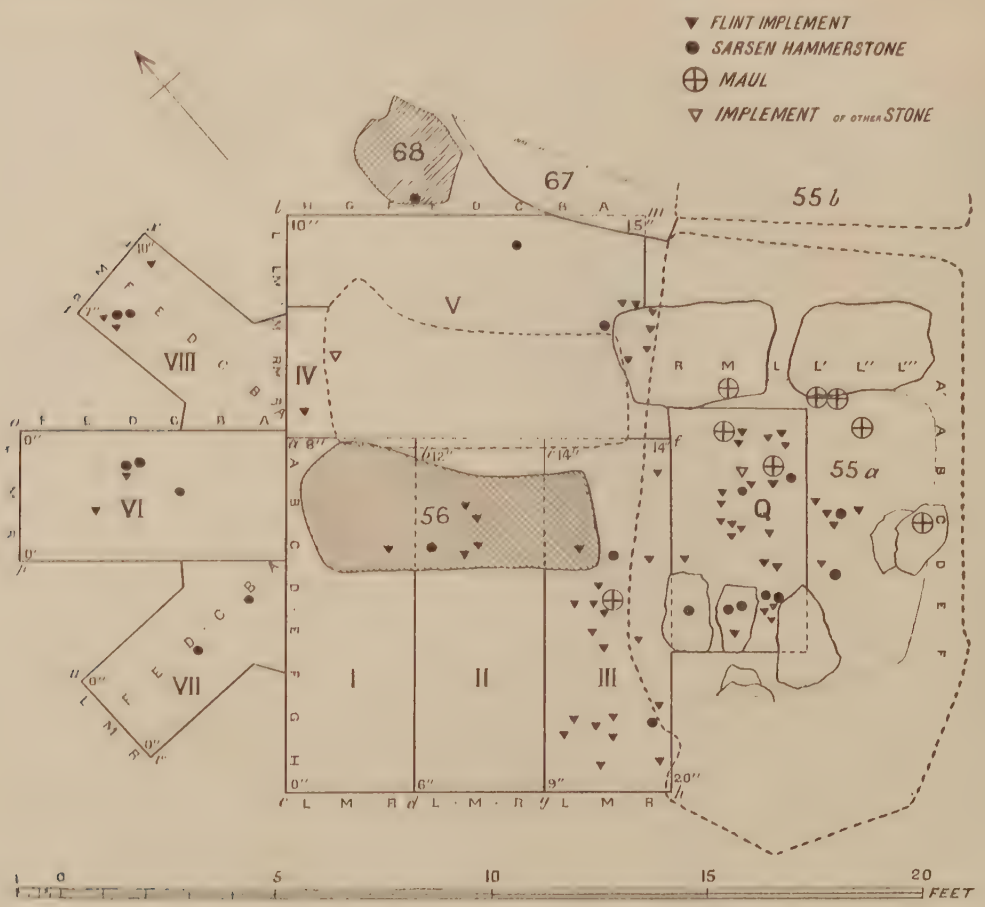


Fig. 7. Plan of the excavations around the stone.

from the latter. It is diabase. The other is in the inner circle between Nos. 32 and 33, 10 feet from the former, and consists of a soft calcareous altered tuff, afterwards designated for the sake of brevity "fissile rock."

The altar stone is of micaceous sandstone.

All these rocks, excepting the sarsens, are foreign to the locality, but I am

[a] *Wilts Archæological and Natural History Magazine*, xxi. 141-149.

informed by my friend Professor Judd, that there is no reason why they should not have been found on the plain in the vicinity of Stonehenge, having been transported there as glacial drift.

All the rocks were represented in the chippings which were found in the excavations.

The Excavations.

The excavations were begun on the south-west side of the leaning stone, by opening up the ground in three sections, I., II., III., as shown on the plan (fig. 7).

Section I. was first excavated, then Section III., and lastly Section II. As each was completed, it was partially filled with concrete before the next was proceeded with. The concrete was put in in such a manner that its front face formed a perpendicular wall against which the stone would rest when set up.

This procedure was necessary, as it would have been unsafe to have exposed and left unsupported the whole of the base of the monolith at one time.

In Section III. an oak log was driven into the chalk and embedded in the concrete wall opposite the lowest point of the base to prevent any slipping of the stone when it was being raised.

Excavation IV. was next made, after which the monolith was raised in a south-westerly direction until it was approximately perpendicular.

The north-west half of Section V. was then undertaken, and when completed the inclination of the monolith to the south-east was rectified.

Excavations VI., VII., VIII., and the remainder of V. were then taken out in the order given, and lastly Excavation Q.

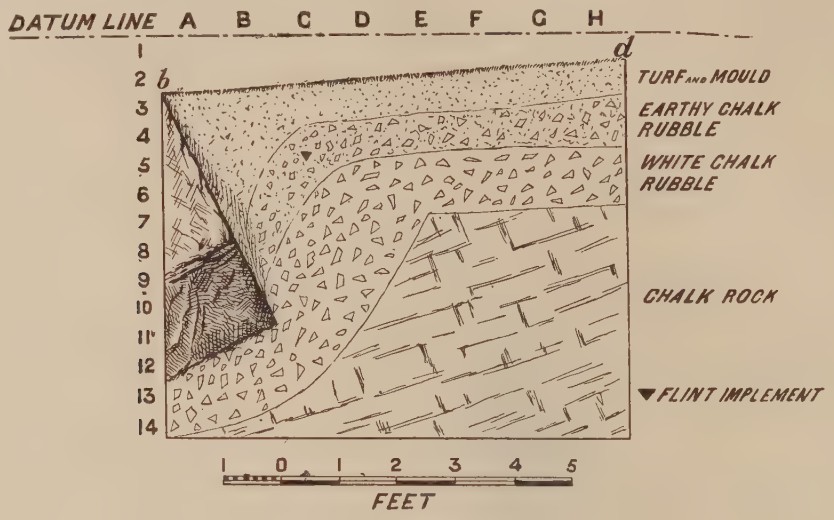
The chief features of the most important of the excavations will now be considered. For a complete account of the whole of the exploratory work, in which the nature and contents of every portion of the ground opened up is fully described, the reader is referred to the Appendix.

The positions in which the stone implements were found are projected on the above plan and into one section of each excavation.

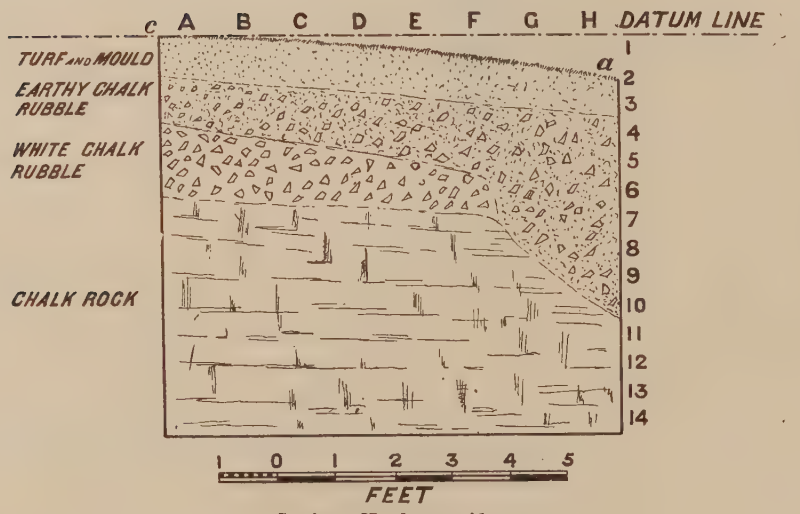
Excavation I.—Figs. 8 and 7.

Immediately beneath the turf and intermingled with its roots, chips and fragments of flint were very abundant, and in addition to these, especially near the monolith, there were considerable quantities of clay-pipe stems, pieces of broken crockery, bottles and glasses, together with pins, buttons, and other rubbish of more or less recent date. This was also the case in all the excavations around the stone. In the other layers, chippings and pieces of all the rocks of

which the stones consist were very numerous, those of the "bluestones," being in excess of those of the sarsens, diabase predominating.



Section. South-east side.



Section. North-west side.

Fig. 8. Excavation I.

Chippings of the "bluestones" and of sarsen occurred together down to the chalk rock. The solid chalk was reached at about 3 feet below the datum line, except in the space left by the falling of the monolith from its upright position.

At a depth of 3 feet 4 inches the north-west side of the monolith was seen to slope away sharply at an angle of about 43 degrees (fig. 11). Beneath this slop-

ing part two blocks of sarsen were exposed, a small one which was removed, and a large one which was subsequently found to extend right across the base, and to have been placed there as a support for the monolith when it was originally erected.

The excavation was carried down to a depth of 7 feet, the lower half being for the most part in the chalk rock.

The chief objects found were :

A Roman coin, a sestertius of Commodus, 8 inches below the turf.

A penny of George III., at the same depth.

In Layer 5, Division CR, a flint hammerstone with edge, fig. 17, *a*.

In Layer 5, Division DR, a splinter of deer's horn embedded in a lump of chalk. This is of considerable importance as evidence of the use of deer's horn picks for excavating the chalk.

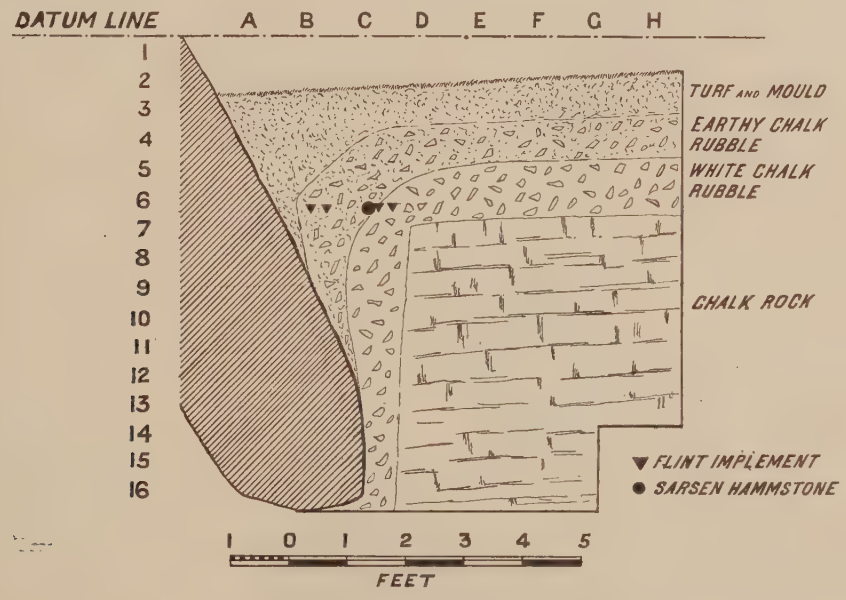
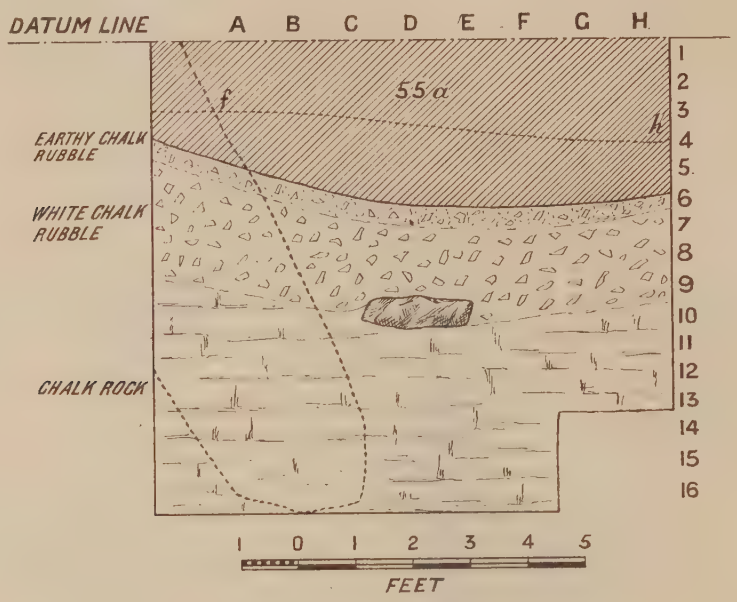

DATUM LINE
A B C D E F G H
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
TURF AND MOULD
EARTHY CHALK RUBBLE
WHITE CHALK RUBBLE
CHALK ROCK
▼ FLINT IMPLEMENT
● SARSEN HAMMSTONE
1 0 1 2 3 4 5
FEET

Fig. 9. Excavation II. Section through the middle.

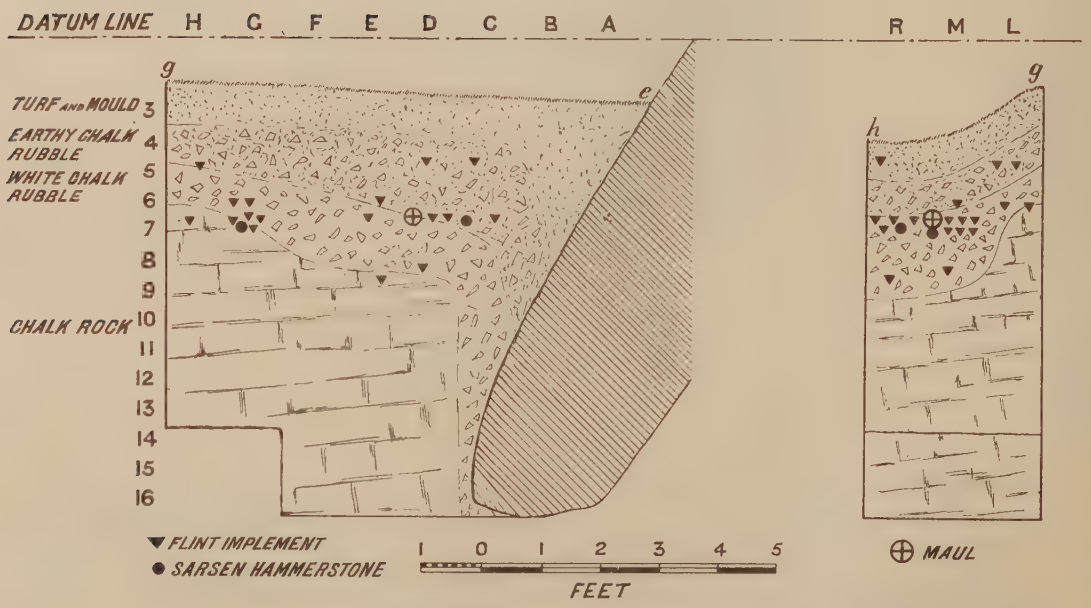
Excavation II.—Figs. 9 and 7.

All the rocks were represented by chippings and fragments, those of the "bluestones" being again in excess of the sarsens. Both kinds occurred together in the layer of rubble overlying the bed rock, and in the same layer there were two edged hammerstones of flint, one of which is illustrated in fig. 14, *e*, two rounded hammerstones of flint, and one of compact sarsen.

This excavation was carried down to a depth of 8 feet, and exposed a further portion of the oblique side of the base of the stone.



Section. South-east side.



Section. North-west side.

Section. South-west end.

Figure 10. Excavation III.

Excavation III.—Figs. 10 and 7. This proved very productive.

Chippings of all the stones were numerous, those of the "bluestones" predominating, and again diabase and sarsen were found together in the layer overlying the solid chalk.

The excavation extended partly under the recumbent stone 55*a*. A large block of sarsen was discovered under this stone. This, it will be shown later, was one of the supporting stones of the monolith before it fell.

The excavation was carried down to a depth of 8 feet 3 inches, at which depth the lowest point of the base of the leaning stone was reached.

The principal objects found were:

A halfpenny of George I., just below the turf.
A Roman coin, a sestertius of Antonia, 10 inches below the turf.
A pewter farthing of James II., at the same depth as the last.

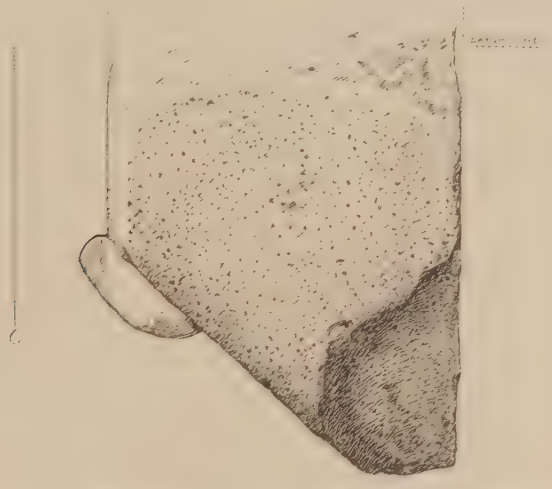


Fig. 11. South-west side of the underground portion of the stone.

Twenty-six axes and edged and rounded hammerstones of flint.
Two hammerstones of compact sarsen, and several pieces of these tools.
One large maul of compact sarsen, weighing 64 pounds 3 ounces.

For particulars of these implements see Appendix, Excavation III.

The underground portion of the "leaning stone" was completely laid bare by these three excavations. It was seen to have a curiously pointed base (fig. 11), the oblique side of which appeared to have a natural and not an artificially worked surface, and was probably the result of a joint in the bed of rock of which the block once formed a part.

The underground face was found to be carefully tooled over its entire

surface, as shown in fig. 28, which represents a part of a large flake that became detached during the operation of raising the stone.

Excavation Q.—Figs. 12 and 7.

This excavation was not made until No. V. was completed, but it will be advantageous to consider it here, as it is so intimately related to No. III. just described, both by position and its large yield of stone implements, and more especially because they together opened up the original site of the base of the now recumbent monolith, No. 55.

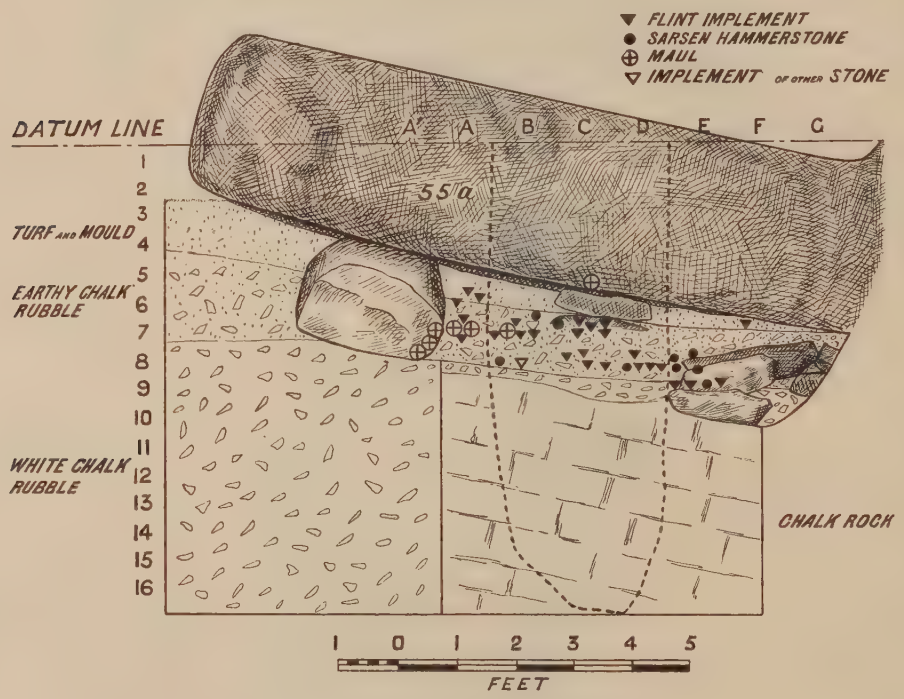


Fig. 12. Excavation Q. Section. South-east side.

The excavation was made entirely under the recumbent stone 55*a*. It extended from the block of sarsen exposed at the south-east end of Excavation V. to a distance of 5 feet 6 inches to the south-west, 5 feet to the south-east measured from the monolith, and to a depth of 8 feet below the datum line.

The recumbent stone was found to be resting about 3 or 4 inches clear of the ground on the sarsen block above mentioned, and another similar one beside it at one end, and on a pile of blocks about 8 feet distant at the other. Several other blocks of the same rock shown in figs. 7 and 12 were also discovered.

The chalk rock was reached at from 4 to 5 feet below the datum line.

Facing the south-east side of the monolith it had been cut away so as to form a sloping wall, the base of which was 1 foot and the upper edge about 2 feet distant from it.

The recumbent stone, No. 55*a*, was found to be carefully tooled over the whole of its under face.

Near the middle there was a very distinct longitudinal rib similar to those on the monolith, No. 59*a*, of the fallen trilithon, showing the manner in which its surface had been trimmed. This face has a slight but distinct curvature or entasis similar to that exhibited by the sides of No. 56, the formerly "leaning stone."

All the rocks of which the stones consist were represented in the excavation by chippings and fragments. Sarsen slightly predominated, and there were many pieces of broken sarsen hammerstones.

In the layer of rubble immediately overlying the chalk rock, diabase and sarsen were found together, and along with them two flint implements. A noteworthy feature of this layer was the occurrence of a large number of splinters of deer's horn.

Layers 7, 8 and 9, yielded the following implements:

Ten axes. Flint.
One axe. Argillaceous sandstone. Fig. 20, h.
Nine hammerstones with edge. Flint.
Four hammerstones rounded. Flint.
Ten hammerstones rounded. Compact sarsen.
Seven large mauls. Compact sarsen. Weights from 36 pounds 2 ounces to 58 pounds 7 ounces.

} See Appendix, Excavation Q.

In addition to the large find of stone tools, another important result of this excavation is the discovery of the blocks of sarsen mentioned above, from which we learn how the stone No. 55 was secured in an upright position after it had been erected.

No well-defined cutting in the chalk to indicate the original position of the base of this stone was seen except the shallow cavity shown in fig. 12, from which a block of sarsen was removed. The blocks of sarsen, too, on the south-west of the excavation were rather confusedly jumbled owing to their displacement by the falling of the stone. But there cannot be the slightest doubt that they formed the packing of the back of its base, and the two larger blocks and the stone mauls that of the front. The base must therefore originally have occupied the space

between them, and this would bring this upright of the trilithon into line with its companion, No. 56.[a] When the stone No 55 fell it seems to have jumped in a south-west direction, so that its lower half now lies over the cavity in which it once stood.

If we now refer to fig. 7, a striking feature of the Excavations III. and Q is manifest, viz. that all the tools found, with but few exceptions, occurred in them, either in or near the cavity occupied by No. 55 before its fall. They had doubtless been thrown in around this stone when it was being set up, the mauls having been wedged in below the front of its base to act together with the large blocks of sarsen as supports.

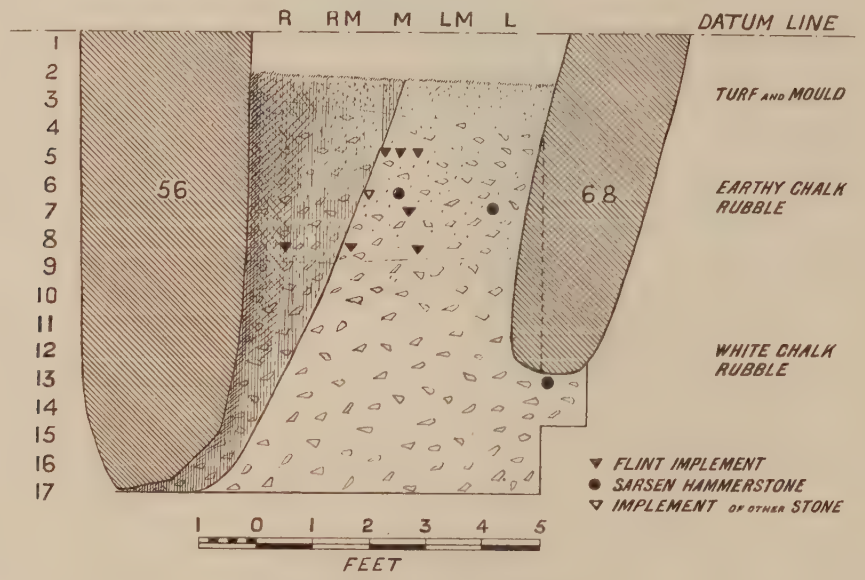


Fig. 13. Excavation V. Transverse section.

Excavation V.—Figs. 13 and 7.

This was begun after the leaning stone had been set upright to the south-west. The whole of the ground was of an entirely different character from that on the opposite side of the monolith. The chalk rock was found to have been entirely dug away and removed for a distance of at least 6 feet from the base of the stone, and to a depth of 7 feet at the west corner of the excavation, and of 11 feet at the south-east end. Why this was done it is difficult to conjecture.

The material filling the cavity consisted in the upper layers of chalk rubble

[a] See fig. 12, in which the position of No. 56 is indicated by a dotted outline.

more or less mixed with mould, and in the lower layers of white chalk rubble, but there was no distinct line of demarkation between them. The base of the monolith at its lowest point, 8 feet 3 inches below the datum line, was found to be resting on a ledge of chalk rock, the exact breadth of which could not be determined, as the rock at its edge passed imperceptibly into very hard chalk rubble. It did not, however, probably extend further than 1 foot 6 inches beyond the front of the stone, that being the breadth of the rock exposed in Layer 14, Division HR.

An important feature of this excavation was the very small quantity of chippings of the stones which occurred in it as compared with the Excavations I., II., and III. at the back of the monolith. The chippings, too, were chiefly found in the south-east half. They comprised all the rocks, and pieces of broken sarsen hammerstones were unusually abundant.

The "bluestone" monolith, No. 68, was exposed down to its base, which was reached in Layer 13 at a depth of 6 feet 3 inches below the datum line. Immediately beneath its lowest point a rudely trimmed sarsen hammerstone, fig. 20, *g*, was found.

In Layer 14, Division AM, an important find was made, viz. a flat rectangular piece of sarsen, measuring about 7 inches by 6 inches by 2½ inches, with one of its surfaces tooled as fig. 28, and having on the other a very small thin stain of copper carbonate.

In Layer 5 the end of a very large block of sarsen projecting from beneath the recumbent stone, 55*a*, was laid bare (figs. 7 and 12). The purpose for which this block originally served has already been pointed out.

Of the other objects found the following are the chief:

Four axes. Flint.	See Appendix, Excavation V.
One axe. Compact sarsen.	
Three hammerstones with edge. Flint.	
One hammerstone. Sarsen.	
One hammerstone. Diabase.	

From the nature of the section of the ground revealed by this excavation, and by Excavations I., II., and III. on the opposite side of the base of the stone, we are led to the irresistible conclusion, the importance of which will be evident later, that this monolith was originally set up by raising it from the interior of the circle.

No absolutely conclusive signs of the Duke of Buckingham's digging, said

to have caused the fall of the great trilithon in 1620, were observed.[a] But in Excavation V., in front of the leaning stone, the ground was seen to have been disturbed to a depth of about 3 feet; the chalk rubble being more mixed with earth than elsewhere, it is hence not impossible that some one might have dug there. The excavation could not have been carried to a much greater depth, otherwise the "bluestone," No. 68, would have been overthrown. It might, however, have extended to the front of the now recumbent stone, No. 55, as the two large blocks of sarsen which acted as the supports of this stone on that side had the ground entirely cut away from above and almost completely from around them. Any attempt to raise or dislodge these blocks would certainly have caused the fall of the monolith.

From the position of the impost as it now lies it would seem that No. 55 was the first to topple, and in its fall it dragged over the other upright of the trilithon, the hitherto "leaning" stone. The complete prostration of the latter was, however, checked partly by the "bluestone" upright No. 68, but chiefly by the great depth to which its base was buried in the ground.

Objects found in the Excavations.

We will now proceed to the consideration of the objects found in the excavations. They comprise chippings and lumps of the stones, stone tools, bones, and a few coins and fragments of pottery. The chippings and pieces of stone are those which had been detached from the stones and the tools during the operations of shaping and dressing. They were found in very large quantities. All the varieties of rock, of which the sarsens and "bluestones" consist, were, as we have already seen, represented, and there was an exceptional quantity of the soft "fissile rock" and of porphyrite considering the few remains of stones of those materials now existing.

Chippings of diabase were more abundant than those of any of the other rocks; there were, however, but few large pieces of it. Sarsen, on the other hand, occurred most abundantly in lumps.

In the excavations on the south-west side of the stone and in VI. and Q, sarsen and diabase were always found together even in the layer overlying the bed rock. On the north-east side diabase chips were somewhat fewer, and pieces of sarsen occurred at lower depths than they.

[a] In a paper, "Stonehenge: an Enquiry respecting the Fall of the Trilithons," in *Man*, 1902, No. 97, Mr. A. L. Lewis adduces evidence to show that the trilithon, of which the "leaning stone" is one of the piers, had fallen before this date.

The soft "fissile rock" is only represented now by the weathered stump mentioned above. But this rock is so easily disintegrated by the action of rain and frost that any stones consisting of it would soon have been destroyed, and hence it may be that this stump is all that is left of them. The amount of chippings would seem to indicate that originally there were several, and it is just possible that other stumps may exist below the ground. Their absence may also be accounted for by their removal for utilitarian purposes, when Stonehenge had lost its sacred character, in preference to the other stones, owing to the ease with which they could be worked.

In all the excavations sarsen and diabase occurred in the largest quantities. The other rocks were also distributed more or less uniformly through most of the layers, but in very varying proportions.

Chippings of a hard compact rock, which cannot, as yet, be referred to any of the existing stones, were also found, but only in small quantities.

It has been suggested that these chippings and lumps may be those left by despoilers from the trimming of stones which they removed.

But if this were true, then they should only have occurred in the surface layers, or at but little below them, and not at the depths at which they were found. It may be remarked further that the Excavation F at the side of the upright, No. 54, of the south trilithon also shows this suggestion to be untenable, for here, down to the depth examined, 4 feet below the turf, they were found, together with large blocks, to form the chief material which had been filled in against the side of the stone, doubtless to afford a more substantial support for it than mere earth or rubble.

That this filling was not of modern date is proved by the incrustation on many of the pieces by which, in fact, some were cemented together.

The Stone Implements.—More than a hundred stone implements were found, and the greater number occurred in the stratum of chalk rubble which either directly overlaid or was on a level with the bed rock.

They may all be arranged in four principal classes, between which, however, there is not in all cases a very distinct line of demarkation. Even in the same class, especially in Classes I. and II., some examples present wide differences from others, but on careful examination many intermediate links will be found by which they are connected.

The numerals and letters by which they are designated in the following enumeration and elsewhere in the Paper indicate their positions in the ground

excavated. Thus for example, III. 7 AR denotes that the implement bearing that mark was found in Excavation III., Layer 7, and Division AR.

These positions, as we have already seen, are projected on the plan (fig. 7) and into a section of each excavation (figs. 8, 9, 10, 12, 13, and 29).

Class I.—Axes roughly chipped and of rude forms, but having well-defined, more or less sharp cutting edges.

This class may be conveniently divided into two sub-classes, A and B, the implements in the former being characterised by a much greater length in proportion to their breadth than those in the latter.

Fig. 14. Flint Implements found in the Excavations.
a, *b*, *c*, *d*. Class I. A.
e. Class II.

A.

III. 7 AR. Fig. 14, *a*.
V. 5 A′AM. Fig. 14, *b*. } Chief typical forms.
Q. 8 CM. Fig. 14, *c*.
VIII. 2 FR. Rude. Similar to fig. 14, *b*.
III. 7 GM. Very rude.
III. 5 DL. Very rude.
V. 7 A′AM. Fig. 14, *d*.
III. 7 GM. Well chipped but unfinished axe. Fig. 17, *f*.

Fig. 15. Flint Implements found in the Excavations.
Class I. B.

B.

Q. 8 DR. A typical form. Fig. 15, *a*
Q. 7½ BM. Fig. 15, *b*.
Q. 9 EL. Fig. 15, *e*.
VI. 7 DL. Fig. 15, *d*.
Q. 8 BM. Argillaceous sandstone. Fig. 20, *h*.
Q. 8 CM. Fig. 17, *c*.
III. 7 DM. Fig. 15, *c*.
Q. 6½ AM. Very rude. Resembling fig. 15, *c*.
III. 9 ER. Very rude. Resembling fig. 16, *e*.
Q. 7½ BL. A typical form. Fig. 16, *b*.
Q. 7 CL′. Fig. 17, *d*.
III. 7 GM. A typical form. Fig. 16, *a*.
VIII. 2 FR. Very rude. Resembling fig. 17, *d*.
V. 6 GRM. Very rude and thin. Compact sarsen.
III. 7 DM. Double edged. Fig. 16, *e*.
VI. 6 CM. Very rude. Compact sarsen.
Q. 7 AM. Similar to fig. 17, *d*.
Q. 7 FM. Similar to fig. 15, *b*.

All the above are flint, except V. 6 GRM, Q. 8 BM., and VI. 6 CM.

Class II.—Hammerstones, with more or less well-chipped sharp curved edges. Most may be correctly termed hammer-axes. They are chipped to an edge at one end, but at the other are broad and thick, and in many examples terminated there by a more or less flat surface. In some the natural coating of the flint is left untouched at the thick end.

Fig. 16. Flint Implements found in the Excavations.
a, b, and e. Class I. B.
c and d. Class II.

Q. 7½ BM. Natural surface of the flint left unchipped towards the butt end.
III. 7 GR. Natural surface of the flint left unchipped towards the butt end.
III. 7 CR. Natural surface of the flint left unchipped towards the butt end.
} Similar to fig. 16, *c*.

IV. 3 R. Principal typical form. Fig. 16, *c*.
III. 6 GL. Large 5·5 inches × 5·5 inches. Similar to fig. 16, *c*.
Q. 8 CM. Similar to fig. 16, *c*.

V. 8 AM.
Q. 8 DL.
Q. 7½ CL.
Q. 7½ AL.
} Similar to fig. 16, *c*, but thicker at butt end.

Q. 7 CL″. Similar to fig. 16, *c*, but very short in proportion to breadth.
VIII. 5 FL. Similar to fig. 16, *c*, but very short in proportion to breadth.
Q. 7 CL′. Similar to fig. 16, *c*, but very short in proportion to breadth.
III. 7 HM. Similar to fig. 16, *c*.
III. 6 EM. Fig. 17, *e*.
III. 5 HR. Similar to fig. 16, *c*.

Fig. 17. Flint Implements found in the Excavations.
f. Class I. A.
c and *d*. Class I. B.
a, *b*, and *e*. Class II.

Q. 9 EL. Much broken.
A. Similar to fig. 17, *a*. Found in Excavation A.
V. 5 AM. Small. Similar to fig. 16, *c*.
V. 5 A′AM.
V. 8 ARM.
VIII. 7
III. 6 GL.
III. 4 HR.
V. 8 HR.
} Similar to fig. 17, *e*.

I. 5 CR. A typical form. Fig. 17, *a*.
III. 7 EM. Fig. 17, *b*.
II. 6 BM. Similar to last.
VI. 3 EM. Similar to fig. 14, *e*.
II. 6 BM. Fig. 14, *e*.
Q. 8 CM. Similar to fig. 14, *e*.
III. 8 DM. Fig. 16, *d*.

Class III.—Hammerstones, more or less rounded. Flint. Some specimens appear to have once had distinct working edges, but they are now much blunted and battered by use.

III. 5 CL. Fig. 20, *d*.
Q. 6 AL. Similar to fig. 20, *d*.
II. 6 CM. Similar to fig. 20, *d*, but more rounded.
II. 6 CM. Similar to fig. 20, *d*, but more rounded.
Q. 6 AL. Similar to fig. 20, *d*.
Q. 7½ BM. Similar to fig. 20, *d*.
Q. 7 CL′. Fig. 20, *e*.
Q. 8 DL′. Similar to fig. 20, *d*.
Q. 8 DL. Similar to fig. 20, *d*.

All the implements in the above classes, with the exceptions mentioned, are of flint, and nearly all from their forms have been used by grasping them in the hand without the intervention of a haft or shaft. As to their use, they were not suitable for shaping or dressing the harder sarsen or the diabase blocks, as flint is much too brittle a material for that purpose. But for dressing the softer sarsens and especially the more easily worked fissile stones, they were perfectly adapted, and were doubtless used for that purpose. Nearly all bear evidence of extremely rough usage, their edges being jagged and broken, just as we should expect to find after such rough employment. Moreover, the severe fractures which some exhibit could only be produced by violent contact with other stones. The larger tools may also have served to excavate the chalk where too hard for the deer's horn picks, and others for the general needs of savage life.

All, notwithstanding their rudeness, are undoubtedly finished implements which have been in actual use, and not implements which have been discarded in the process of manufacture.

I insert here figs. 18 and 19,[a] representing similar flint implements which were found at Cissbury,[b] by the late General Pitt-Rivers; at Grime's Graves,[c] near Brandon, Norfolk, by Canon Greenwell; and at Stourpaine, near Blandford, Dorset, by Mr. Durden.

Fig. 18. Flint Implements of similar forms to those found at Stonehenge.
a. From Grime's Graves.
b and *f*. From Stourpaine.
c, *d*, and *e*. From Cissbury.

If we now compare the Stonehenge implements of the above classes with these it will be seen that many are very closely allied to them in form and some

[a] I am indebted to the courtesy of my friend our Secretary, Mr. C. H. Read, Keeper of British and Medieval Antiquities in the British Museum, for permission to make the photographs from which these figures are taken.

[b] *Archaeologia*, xlii. 53 *et seq.*

[c] *Journal of the Ethnological Society of London*, 2nd series, ii. 419 *et seq.*

are practically counterparts. A very close resemblance is especially evident in the following examples:

CLASS I.

Stonehenge implement,		fig. 14, *a*,	and	Stourpaine implement, fig. 18, *b*. Cissbury implement, fig. 18, *c*.
Do.	do.	fig. 17, *c*,	and	Cissbury implement, fig. 18, *e*.
Do.	do.	fig. 16, *b*,		Stourpaine implement, fig. 19, *m*.
Do.	do.	fig. 17, *f*,	and	Cissbury implement, fig. 19, *g*.
Do.	do.	fig. 15, *a*,	and	Stourpaine implement, fig. 18, *f*. Stourpaine implement, fig. 19, *k*.

Fig. 19. Flint Implements of similar forms to those found at Stonehenge.
g. From Cissbury.
h. From Grime's Graves.
i, *k*, *l*, and *m*. From Stourpaine.

An implement precisely similar to fig. 14, *a*, was found by Dr. Smart at Ore, near Hastings,[a] and several at Grime's Graves [b] by Canon Greenwell.

[a] *Sussex Archæological Collections*, xix. 53, plate, fig. 1.
[b] *Op. cit.* Pl. xxviii. figs. 4 and 5.

Class II.

Stonehenge implement, fig. 16, *c*, and Cissbury implement, fig. 18, *d*.
Do. do. fig. 16, *d*, and Stourpaine implement, fig. 19, *i*.
Do. Several not illustrated and Grime's Graves implements, figs. 18, *a*, and 19, *h*.

Class III.

Stonehenge implements, fig. 20, *d* and *e*, and Stourpaine implement, fig. 19, *l*,

The Cissbury implements, of which a great many were found, were attributed by General Pitt-Rivers "to the Stone Age or at any rate to the age of the flint manufacture." The fauna associated with them was undoubtedly neolithic.

The implements from Grime's Graves were found in the field immediately adjoining to the pits, and according to Canon Greenwell "in them we have the result, to some extent, of the operations of the people who quarried the flint" in the so-called "Graves." In the pit explored by him the chalk had been excavated with deer's horn picks, many of which were found closely resembling that discovered at Stonehenge. As regards the age of the pits Canon Greenwell is of the opinion that they are neolithic, or, at any rate, not of the fully developed Bronze Age, for the following reasons: "The quantity of flint that has been obtained from the pits at Grime's Graves is so great, and the supply of material for implements was so very large, that it is difficult to understand how operations on a scale so extensive could have been required when the use of stone must have been to a great extent superseded by metal. During the time when both metal and stone were in use, flint was required more for smaller weapons, such as arrow points, and for articles like scrapers, saws, and knives, than for larger implements such as hatchets."

The importance of this comparison of the implements found at Stonehenge with those from the localities cited is obvious. It tends to demonstrate, in my opinion, that the Stonehenge implements are not far removed in time from the others, and hence belong to an age antecedent to the full development of the use of bronze if not to the neolithic age itself.

Class IV.—Hammerstones more or less rounded. Fig. 20. These hammerstones, of which about thirty were found, require but little description. They

almost all consist of large pebbles or small boulders of the hard quartzite variety of sarsen although one or two are pieces which have been detached from sarsen blocks.

Some, as fig. 20, *f* and *i*, have been roughly broken into convenient forms for holding in the hand, whilst a few have been rudely trimmed into more regular

Fig. 20. Stone Implements found in the Excavations.
h, Class I. B. Argillaceous sandstone.
d and *e*. Class III. Flint.
All the others are of Class IV. and consist of compact sarsen.

shapes, as for example *g*. They vary in weight from about a pound up to six and a half pounds.

VI. 4 DL. Weight 9½ ounces.
V. 7 CL. Weight 12 ounces.
Q. 7 CL′. Weight 11 ounces.
VII. 2 BM. Weight 14 ounces.
VI. 7 DL. Weight 14½ ounces. Fig. 20, *k*.
III. 7 GR. Weight 15½ ounces.

C. Weight 15½ ounces. Found in Excavation C.
Z. Weight 1 pound 2½ ounces. Fig. 20, *g*. Found in Excavation V.
F. Weight 1 pound 2½ ounces. Fig. 20, *c*. Found in Excavation F.
E. Weight 1 pound 3 ounces. Found in Excavation E.
Q. 8½ EL. Weight 1 pound 3 ounces.
III. 7 CM. Weight 1 pound 3 ounces. Fig. 20, *i*.
VIII. 5 FR. Weight 1 pound 4 ounces.
Q. 8 M. Weight 1 pound 5 ounces.
VIII. 5 F.R. Weight 1 pound 4½ ounces.
Q. 8½ ER. Weight 1 pound 6 ounces.
Q. 8 EM. Weight 1 pound 7 ounces. Fig. 20, *f*.
Q. 8 BM. Weight 1 pound 10 ounces.
Q. 7 BL. Weight 1 pound 12 ounces. Fig. 20, *b*.
Q. 7 DL. Weight 2 pounds 10 ounces.
Q. 8 DL′. Weight 3 pounds 12 ounces. Fig. 20, *a*.
III. 7 GR. Weight 3 pounds 15 ounces.
II. 6 CL. Weight 4 pounds.
VII. 2 DM. Weight 5 pounds 11 ounces.
V. 6 AM. Weight 6 pounds 7 ounces. Diabase.

These rude hammers were undoubtedly employed, as we shall see later, in producing the fine pitted markings which the finished surfaces of the sarsen stones present.

Class V.—Mauls, a more remarkable kind of hammerstone than those just enumerated.

The following eight were all found either on or in the immediate proximity of the original site of the base of the recumbent stone No. 55a See figs. 7, 10, and 12.

Q. 7 A′M. Weight 36 pounds 2 ounces.
Q. 7 A′L′. Weight 43 pounds 6 ounces.
Q. 7 AM. Weight 44 pounds 2 ounces. Fig. 21, *a*.
Q. 7½ BL. Weight 45 pounds. Fig. 22, *a*.
Q. 6 CL‴. Weight 46 pounds.
Q. 7 A′L′. Weight 46 pounds 15 ounces. Fig. 21, *b*.
Q. 7 AL″. Weight 58 pounds 7 ounces.
III. 7 DM. Weight 64 pounds 3 ounces. Fig. 22, *b*.

They are ponderous boulders of the quartzite variety of sarsen with their broadest sides more or less flat.

On their narrower sides most have two distinct working faces, but one has

Fig. 21. Stone Implements found in the Excavations. Class V. Mauls.

Fig. 22. Stone Implements found in the Excavations. Class V. Mauls.

been repeatedly turned round in its holder during use, so that it has become almost spherical in shape.

There is no well cut groove around the middle of any, but all have been roughly chipped, or present natural inequalities there, so as to allow of their being secured by bands of twisted osier or hazel twigs or by strips of hide in order that they might be used by two or more men. It may be that they were fitted with handles for directing the blow and ropes for lifting them as is the practice in Japan for the heavy wooden mauls (fig. 23) employed there for beating down the foundation stones of houses.

Fig. 23. Heavy maul as used in Japan.

As regards the uses to which they were applied, it will be evident, from what will be advanced later, that they were employed not only for roughly breaking the rude blocks into regular forms but also for working down their faces to a level or slightly curved surface.

The boulders of which they consist were apparently derived from a stratum of the quartzite variety of sarsen, about 7–9 inches in thickness, which occurred in the sandstone beds that once overlaid the chalk of the district.

The weights of these large stone mauls range from 43 pounds 6 ounces to 64 pounds 3 ounces, with one exception which only weighs 36 pounds 2 ounces.

Similar mauls have been found in the ancient copper mines at Llandudno and near Lake Superior, but none of these exceeded 40 pounds in weight.

The whole of the implements in the preceding lists must unquestionably be regarded as the discarded tools of the prehistoric builders of Stonehenge. Rude as they are they are nevertheless most efficient work tools, and with them the megalithic blocks of the structure were undoubtedly shaped and trimmed.

Perhaps the most striking features of the flint implements is their extreme rudeness, and that there is not a single ground or polished specimen among them. This, at first sight and without due consideration, might be taken to indicate an extremely remote age. But in this connection it must be borne in mind that in the building of such a stupendous structure as Stonehenge the tools required must have been numbered by thousands. The work too was of the roughest character, and for such only rude tools were required. The highly finished and polished

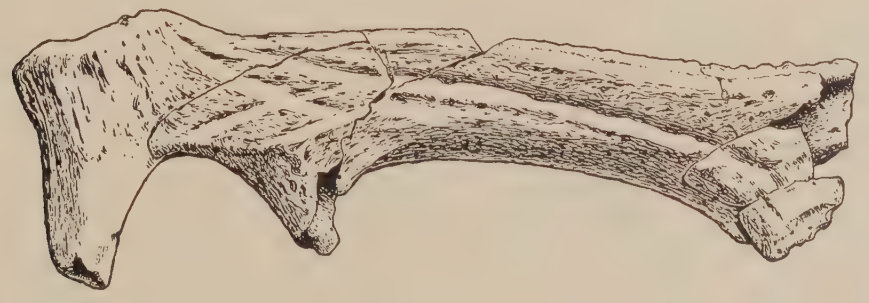


Fig. 24. Deer's horn pick found at Stonehenge. (¼ linear.)

implements which we are accustomed to consider, and rightly so, as characteristic of neolithic man, would find no place in such work. They required too much labour and time for their manufacture, and, when made, could not have been more effective than the hammer axes and hammerstones found in the excavations, which could be so easily fashioned by merely rudely shaping the natural flints, with which the district abounds, by a few well directed blows of a sarsen pebble.

These implements can therefore, I think, notwithstanding their rudeness, be legitimately placed in the neolithic age and, it may be, near its termination.

Bones.—As regards the bones, they are only the bones and teeth of domestic animals, horses, oxen, sheep, goats, pigs, and dogs, and of rabbits and deer, not calculated to afford any evidence as to the date of Stonehenge.

Of considerable importance, however, are the splinters of antlers of deer

which occurred in most of the excavations, especially in Q, where they were found along with the stone tools, as they would seem to indicate that antlers were utilised as picks in digging the holes for the stones.

And, indeed, a portion of a large antler (fig. 24), with its lowest tine worn away apparently by such use, was found in the rubble immediately above the chalk at a depth of 5 feet 8 inches below the surface of the ground in Excavation VIII.

In this connection it may be remarked that all the digging required even in the chalk was perfectly possible with such implements, aided it may be by some of the larger flint tools.

Coins.[a]—These are of a very miscellaneous character, and all, even the Roman coins, were only found in the superficial layers. Enumerating them in the order of their dates they are as follows:

Excavation III. 5 CM. 10 inches below the surface.

A Sestertius of Antonia, mother of Claudius (?) and daughter of Marcus Antonius and Octavia. Her head is on the obverse, and on the reverse a figure of Claudius, her husband.

Excavation I. 2 HL. 8 inches below the surface.

"Large Brass" or Sestertius of Commodus, with figure of "Nobilitas" on the reverse. Struck A.D. 187.

Excavation V. 4 HM. 12 inches below the surface.

A coin, may be a "ticket." Roman or early Anglo-Saxon. If the latter it would be an ornament.

Excavation III. 5 DM. 10 inches below the surface.

Pewter farthing of James II. (1685-1688).

Excavation III. 4 HR. Just below the turf.

Halfpenny. George I. Struck 1722.

Excavation Q. Surface layer.

Halfpenny. George II.

Excavation I. 3 BM. 8 inches below the surface.

Penny. George III.

[a] I am indebted to my friend Mr. H. A. Grueber, F.S.A., of the British Museum, for the identification and description of these coins.

The Erection of Stonehenge.

Transport of the Stones.—Our special concern will now be to see how the stones could have been brought to Stonehenge, the manner in which they were shaped, and the means adopted for setting them up. For these ends no elaborate engineering appliances were required, neither was a knowledge of metals necessary. All the operations could be efficiently carried out with tools of stone and deer's horn, trunks of trees, and ropes of hide.

As regards the working and erection of the stones, the excavations have yielded sufficient material to make clear to us, generally, the manner in which these operations were performed, although some minor points still remain shrouded in obscurity.

On the other hand, as regards the transport of the blocks, they throw but little light. For the solution of this problem we have, therefore, to turn to the examples of similar work in countries where primitive methods for moving heavy bodies are still, or have been recently practised.

In Japan, where megalithic remains abound, and where the use of rude massive stones was common almost up to our own times, and even now is occasionally seen, enormous blocks were transported for considerable distances without the aid of any appliances which were beyond the reach of the men of the neolithic age.

In the walls of the Castle of Ôsaka, built in the seventeenth century, there are several enormous stones, the largest of which measures 40 feet by 10 feet by at least 5 feet, and must weigh more than 160 tons.

A picture painted in the eighteenth century, which I have seen, represents the transport of one of these stones. In it the stone is represented resting on a low frame of massive timbers fitted with rude solid wheels of wood. This is being hauled by a vast number of men by means of huge cables to which numerous small ropes are attached.

In other cases a number of rollers were substituted for the wheels, and this method I have seen in operation.

The block is placed on the frame by first raising it to the required height by the application of long wooden levers to either end alternately, and packing it up with timber as it is being raised. The frame is then slipped under it and the packing removed.

The illustration of the transport of a colossus (fig. 25[a]), which was discovered on the wall of a tomb of the twelfth dynasty at El Bersheh is specially worthy of note here, as it shows that a precisely similar method, but without the use of wheels or rollers for the frame, was practised in Egypt.

Another method which is illustrated in Plate V.[b] may be seen in use everywhere in Japan and in China for carrying about stones and timber of much greater weight than the bluestones. In some of the hill districts in India stones of 20 tons weight are thus carried. The huge block which is the pedestal of a tombstone is pierced with a central hole so that a strong beam of timber passed through it is all that is required for the attachment of the bearing poles.

Generally, however, several horizontal beams are lashed to the stone, and to

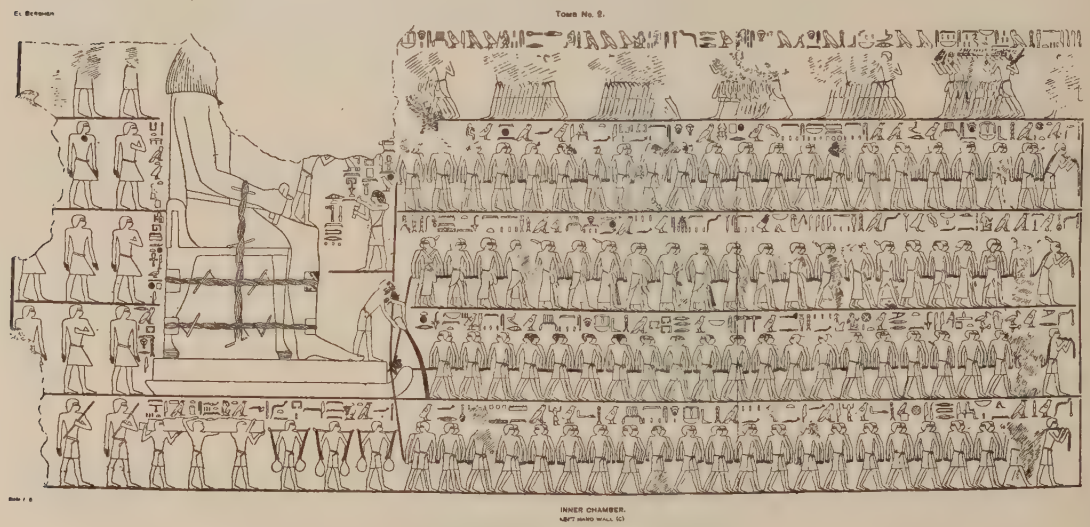


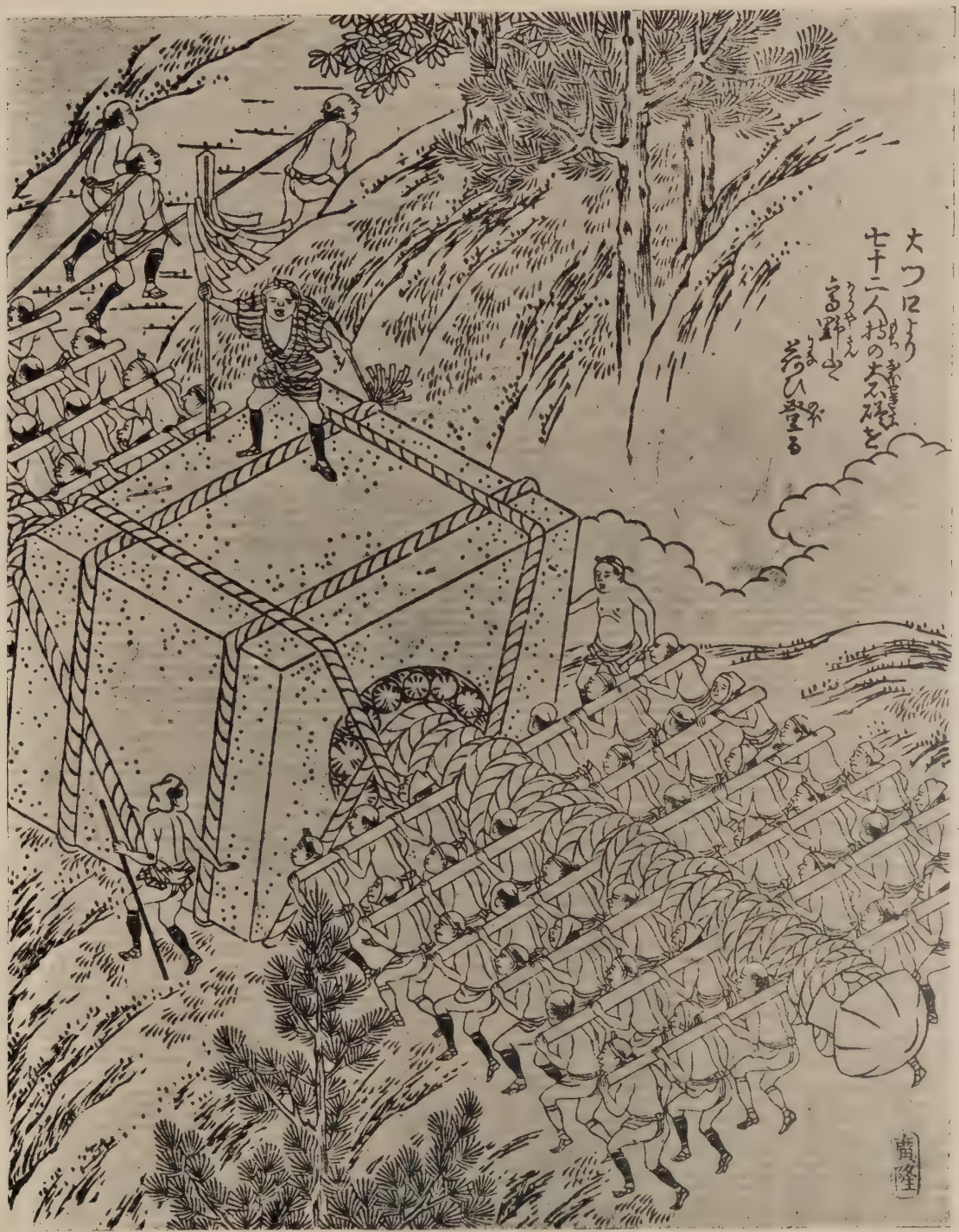
Fig. 25. Transport of a colossus. Egypt.

these, at intervals of about two or three feet, transverse poles are fastened, of sufficient length to accommodate the shoulders of from two to three or more men at each side in the manner shown in the figure. The men keep time by shouting simultaneously at each step, and in this they are guided by the man standing on the stone waving his wand.

Any of the methods I have described were perfectly possible to the builders of Stonehenge, and it is in the highest degree probable that the same or

[a] Copied by permission of the Egypt Exploration Fund from Memoir III. of the Archæological Survey of Egypt, *El Bersheh*, pt. i. pl. xv.

[b] *Kii no Kuni Meisho Zu-e*, 1851, iv.



TRANSPORT OF A HUGE BLOCK OF STONE. FROM A JAPANESE DRAWING.

Published by the Society of Antiquaries of London, 1902.

similar methods were employed by them for the transport of the stones from the places where they were found.

And in this connection it must not be forgotten that all the stones of Stonehenge occurred in its neighbourhood, within a radius of not many miles, as has already been pointed out, and had not to be brought from a distant locality.

Shaping and Dressing the Stones.—In this connection it is necessary to remember that the sarsens, of which the outer circle and the trilithons consist, occur naturally in more or less flat tabular blocks; usually of much greater length than breadth, and generally ranging in thickness from about 2 to 4 feet. On their surfaces they are often soft and friable whilst in the middle they are dense and hard.

No single stone is of uniform hardness; some parts may be so soft that they can be rubbed away with the fingers, others so hard that they resist chipping with a steel chisel.

Originating as concretions in a bed of sand they had somewhat curved outlines, and usually one face, the under face, retained a more marked convexity than the other.

From what has just been stated it follows that as a rule but little material would have to be removed from their broad faces to reduce them to the symmetrical forms seen at Stonehenge.

To break off large pieces from their sides and ends was not a matter of great difficulty. It was probably accomplished by lighting strips of wood along the line where the fracture was desired; pouring cold water on it when sufficiently heated and then pounding the part to be detached with the heavy stone mauls. Pieces of considerable size could also be readily broken off by the use of the mauls alone. I may mention here that the line of holes seen on the upper side of stone No. 95, cut across one of its corners (fig. 26), is not, I think, contemporaneous with the erection of the circles, but of much later date, as the holes show but little signs of weathering although they are in such an exposed position. They must often be filled with water in winter, and its alternate freezing and thawing could not have failed to have caused a very much greater amount of disintegration than their sides now present, had they been cut by the builders of Stonehenge.

Moreover, that the monoliths were not shaped by cutting holes along the line of desired fracture is, I think, satisfactorily proved by the large blocks of sarsen which were found in the excavations. These, it is not unreasonable to assume, had been detached from some of the monoliths in the process of shaping them, yet

on none are there any traces of such holes. All without exception had simply rudely fractured surfaces.

This rough shaping of the sarsens doubtless generally took place at the spots where they were found; the final dressing only being performed in the immediate neighbourhood of the sites where they were to be set up.

Fig. 26. Line of holes cut across a corner of the so-called "slaughter stone," No. 95.

To remove the inequalities resulting from this treatment, to reduce the stones to a proper thickness, and to give to their faces the slightly curved surfaces[a] which many of the monoliths present, evidently required more tedious operations.

[a] It may be mentioned incidentally that the same curved surfaces are found on the internal faces of the huge megalithic blocks of which the dolmens in Japan are constructed whenever these are of hewn stone. See *Archaeologia*, lv. 464.

The mode in which these ends were attained, is clearly evident on examining the surfaces of some of the stones, notably Nos. 59, 54, and the underside of 55*a*. On these will be seen several broad parallel and shallow grooves having a more

Fig. 27. Fallen stone showing grooves formed in dressing the surface.

or less prominent rib between them. This is well seen on the fallen stone in fig. 27.

These grooves were undoubtedly made with the stone mauls by violently pounding the stone with them in a line running longitudinally over the surface to be levelled or removed.

The action of a maul so used on the sarsen rock of which the stones consist was this: Each blow fractured and disintegrated the surface over a considerable area and to a considerable depth, forming a shallow cavity, varying in size with the hardness of the rock and the violence of the blow The procedure was as follows: One or more heavy blows were struck, the material detached was then brushed away, the blows were repeated, but near the edge of the cavity, the material again removed, and this was continued until the groove was completed.

The rib between each groove was broken away by side or vertical blows of the same implement.

Here I would point out that very few small chips of sarsen were found, although larger pieces were common. This is just what we would expect from this mode of dressing, as the material broken away would be either in a more or less pulverulent form or in pieces of considerable size.

On some of the stones, notably on Nos. 59, 54, and 52, transverse, but much narrower and shallower, grooves are seen which were made with the same mauls for facilitating the removal of the longitudinal ribs and the cutting down of the surface.

The sarsen uprights of the outer circle have each two tenons, and those of the horseshoe a single tenon, projecting from their upper extremities, which fit into corresponding mortices on the lintels and imposts. They were evidently troublesome to make, as with the exception of those on Nos. 60 and 56, they are generally of more or less irregular shapes and rude workmanship. In the case of the recently fallen upright No. 22, they are merely low shapeless bosses of only about an inch or so in height; but even the best hewn could have been fashioned, without difficulty, by the patient use of the quartzite hammerstones.

The hollowing out of the mortices on the lintels and imposts was a very easy matter. It was, I think, effected with water and sand by the very efficient process of turning round a stone of less size than the cavity until the required depth was attained, a method practised in Japan in the manufacture of stone mortars.

I am informed by Professor Flinders Petrie that precisely the same process was employed in Egypt in the much more difficult operation of making the exquisitely executed bowls of diorite and other hard stones so well known to Egyptologists. In his excavation at Abydos he had the good fortune to discover the site of an actual workshop where these vessels were made and in which there were many of the rubbing stones that had been actually used in the process.

The lintels have also either vertical projections or grooves on their ends forming rude toggle joints by which they were connected with one another. These too could be fashioned with the hammerstones, and with rubbing stones and sand, without any difficulty. It may be further remarked, that in all such considerations of primitive art it must be remembered that time, which forms such an important element in modern work, hardly comes into account in that of early man.

The finished surfaces of all the stones exhibit very careful tooling, except where it has been destroyed by exposure. This was particularly well seen on the base of No. 56, where it extends below the ground, and had thus been protected from the action of the weather, and on the lower side of No. 55*a*. On the under side of the fallen lintel, No. 122, it is also very distinct.

A thin slab that became detached from stone No. 56 near its lower extremity, whilst it was being raised, a part of which is shown in fig. 28, affords a characteristic example of this tooling in a very perfect condition, in fact almost as distinct as when it was originally done.

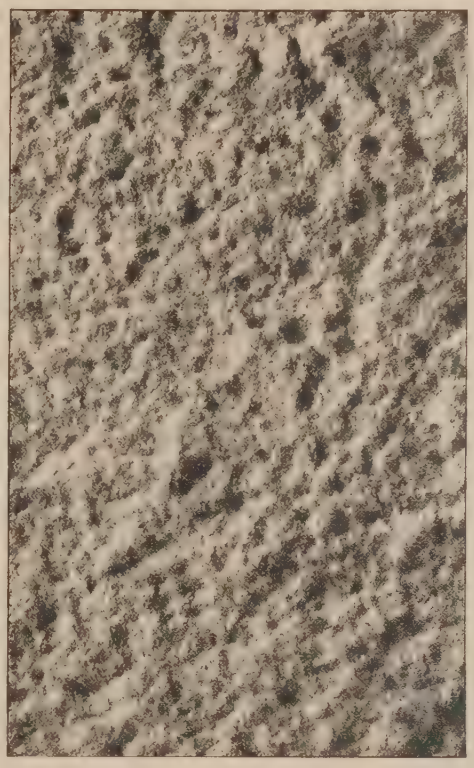


Fig. 28. Tooled surface of the stone.

This tooling was apparently executed with the small quartzite hammers. In order to demonstrate this a piece of sarsen was tooled in a similar manner by Mr. Stallybrass with a quartzite pebble. On comparing it with the blocks tooled by the builders of Stonehenge, they were seen to be almost perfectly identical. I may say in this connection that Mr. Stallybrass failed to produce anything at all like it with any of his mason's tools.

We next come to the "bluestones" and the altar stone, which, as we have seen, consist of various kinds of rock, the two hardest of which are diabase and porphyrite. On the stones of these latter materials no grooves are apparent except on No. 67, the groove on No. 68 having been cut for some special purpose,

which is not clearly evident, and not with the mere object of shaping the stone. The chippings from them are generally small, and from their forms, even when large, have all apparently been struck off by blows from a blunt tool. The abundance of these chippings in the excavation prove conclusively that the stones were shaped on the spot.

With the exception of No. 68, none of these monoliths, probably owing to their hardness, are of such regular forms as those of sarsen. So that their sculpture could be accomplished without difficulty by means of the heavy mauls and the smaller quartzite and sarsen hammers, and these were without doubt the tools which were employed. The surfaces of some have been tooled in the same manner as the sarsens, but the pitting is much shallower owing to the tougher nature of the rocks of which they consist.

The stones represented by the clippings of the soft fissile rock, of which only a single weathered stump exists, and the altar stone, could be shaped and partially dressed with any of the implements. But it is in the highest degree probable that the rude flint axes were the tools which were used in the final dressing operations, as they are more suitable for that work on these soft rocks than the heavier and blunter hammers.

Erection of the Stones.

There still remains for our consideration the manner in which the megalithic blocks of this monument of ancient skill were set up and secured in their foundations.

On these points, as regards the most massive stones in the structure, the recumbent stone, No. 55, and the hitherto leaning stone, No. 56, which formed the piers of the central and the greatest of the trilithons, the excavations have afforded us clear and conclusive evidence.

The foundations of these stones when laid bare, as is shown in the foregoing illustration, were seen to be each of an entirely different character, that of the recumbent stone having only a depth of 4 feet, whilst the other extended down to no less than 8 feet 3 inches below the surface. The reason for this is at once apparent, if we compare the relative lengths of the stones, one being only 25 feet and the other 29 feet 8 inches in length; and at the same time take into consideration the obvious intention of the builders respecting them. They were the largest blocks which had been found, and the builders of the monument evidently

determined to utilise their lengths to the utmost, in order that this trilithon, the central one of the series, might have a vaster and more impressive magnificence than its fellows by towering over them, and thus mark in an unequivocal manner the most important point in the sacred enclosure.

With that end in view the shorter stone was embedded to only half the depth of its companion, so that, as is shown by the weathering at their old ground lines, they might bear the impost at a height of about 21 feet above the turf.

To enable the shorter to do this without too great a sacrifice of stability it was necessary to give a special shape to its base. This was accomplished by trimming the stone to a regular form for 21 feet of its length only, and leaving the lower extremity in the shape of a large irregular projecting boss so as to give it a broad bearing on the foundation prepared for it. (See fig. 4.)

The longer stone, No. 56, was dressed into a symmetrical shape from its summit to its base, excepting that the part below the ground was left thicker than the summit and had the rudely pointed form described above.

This stone appears to have been erected first. Its foundations, which have been partly described, were prepared as follows :—The ground lying within and around the site it was intended to occupy was excavated and removed, the chalk rock being cut away to a depth of from 7 feet to 8 feet 3 inches in such a manner as to leave a ledge, on which the base of the stone was to rest, and a perpendicular face rising from it, against which as a buttress its south-west side would bear when set up.

As has been pointed out in a former page, the breadth of this ledge could only be determined approximately, as the chalk rock at its edge passed insensibly into firmly consolidated rubble. It could not, however, have much exceeded 4 feet, and was probably about 4 feet 6 inches.

A low sloping wall of chalk had also been left opposite to and about 1 foot distant from the south-east side of the base of the stone, and a similar wall 2 feet 6 inches distant from the north-west side.

On the north-east side of the ledge the rock had been entirely removed to a depth of about 7 feet near the north corner of the stone, and of about 11 feet in front of the opposite corner.

From the bottom of this hole at a point not determined, as it was not exposed in the excavations, an inclined plane of rock sloping down from the interior of the enclosure was apparently cut, as only 25 feet from the front of the stone the chalk reaches to within 2 feet of the surface.

Both the rubble and chalk were also dug away for a considerable distance to

the north-west, and to a depth of 3 or 4 feet on the south-west. For some reason which is not evident, part of the perpendicular face of the chalk was cut away at the west corner, it may have been, however, to facilitate the adjustment of the stones on which the sloping side of the base was to rest.

Its site having been thus prepared, the monolith which had already been dressed, was slid down the inclined plane into the cavity until its base rested on the ledge.

It was then gradually raised into a vertical position by means of levers and ropes. The levers would be long trunks of trees, to one end of which a number of ropes were attached, as in Japan, so that the weights and pulling force of many men might be exerted on them. The stronger ropes were probably of hide or hair, but others of straw, or of withes of hazel or willow, may have been in use for minor purposes.

As the stone was being raised, it was packed up with logs of timber and probably also with blocks of stone placed beneath it.

After its upper end had reached a certain elevation, ropes were attached to it and it was then hauled by numerous men into a vertical position, so that its back rested against the perpendicular face of the chalk which had been prepared for it. During this part of the operation, struts of timber would be placed against its sides to guard against slip.

Two blocks of sarsen were then placed under the oblique side of the base, the excavation was filled in with rubble, and the erection of the next stone, No. 55, proceeded with.

In the case of this stone, the site it was to occupy was only excavated to a depth of about 4 feet 6 inches below the datum line, and the chalk rock was left as an almost level platform without any very distinct cavity.

A large block of sarsen was apparently placed immediately below its lowest point, and then behind this other large blocks were piled up in such a manner (fig. 12), that the projecting boss at the back of the stone would rest on and be supported by them.

The stone was then raised in the same way as No. 56, and as soon as it was vertical, the two largest blocks (fig. 7) were fixed under it in front, and the large stone mauls were fitted into the interspaces there to give additional support.

From the precarious nature of this packing of stones, it will be evident how very easily the stone would be overthrown by any excavation made in its neighbourhood.

As regards the raising of the lintels, and imposts, and placing them on the tops of the uprights there would be even less difficulty than in the erection of the uprights themselves.

It could be easily effected by the simple method practised in Japan for placing heavy blocks of stone in position.

The stone, when lying on the ground, would be raised a little at one end by means of long wooden levers. A packing of logs would then be placed under the end so raised, the other extremity of the stone would be similarly raised and packed, and the raising and packing at alternate ends would be continued until the block had gradually reached the height of the uprights. It would then be simply pushed forward by levers until it rested upon them.

An important question now arises: are the "bluestones" and the sarsens contemporaneous, or were they set up at different times?

Some special value, perchance, merely from their colour or rarity, must have been attached to the "bluestones," otherwise, the excessive labour required for shaping them would not have been undertaken.

According to a venerable legend, they were brought from Ireland, or other distant place, and were set up as a sacred circle, to which, it has been supposed, the sarsen trilithons and circle were added at a later period in honour of their sanctity. That neither the legend nor the supposition is true, and that both the "bluestone" monoliths and the sarsen blocks are contemporaneous we have ample proofs, as has already been shown in the mode of occurrence of their chippings and of the stones themselves.

Still further evidence in this direction, if such is needed, is afforded by the manner in which the sarsens were set up. That the stones of the central trilithon were erected from the inside of the circle has been conclusively demonstrated by the excavations, hence the "bluestones" in front cannot have been erected before them. Moreover the "bluestone," No. 68, the base of which was laid bare in Excavation V., was found to be set in the rubble which had been used to fill up the foundation of No. 56, and further, in a lower layer than its base, there were two small blocks of sarsen with tooled surfaces.

Whether the outer sarsens were set up from the inside of the circle like the trilithons or from the outside, is a point which can only be settled by future excavations. If from the inside their erection must have preceded that of the trilithons and hence of the "bluestones."

On the other hand, should the outer sarsens have been raised from the outside, it would not be possible for the "bluestones" to have been placed in position

before them, as they would then have seriously interfered with if not altogether prevented the erecting operations.

The venerable traditions which tell of the earlier date and more sacred character of the "bluestones" are hence shown to have no foundation in fact, they are merely the creations of poetical imagination. No long interval of time separated the erection of the sarsen and the "bluestone" monoliths, although the work must have occupied a considerable period. The monument as a whole is of one date. Its parts do not belong to different ages.

Age of Stonehenge.

As regards the age of Stonehenge we have now to consider how far the objects found in the excavations throw light on that important and much disputed subject.

No object of bronze, iron, or other metal occurred in the excavations except in the superficial layers.

The Roman coins were found at but small depths below the surface, and with one exception, the doubtful coin or Anglo-Saxon ornament, not deeper than the modern coins.

But at the south-east end of Excavation V., 7 feet below the datum line, there was found a rectangular slab of sarsen, to which allusion has already been made, the upper surface of which is tooled, and having on its lower side a small green stain, or more correctly a green incrustation. The incrustation, which is of extreme thinness, occurs in the form of two small patches of irregular shape. A minute portion of it was analysed and found to consist of carbonate of copper. Now this incrustation can only have been produced by prolonged contact with some very small object of copper or bronze or some material containing copper. What the object or material can have been it is difficult to say as it had completely perished; for it was not found, notwithstanding that it was specially sought for, and anything larger than $\frac{1}{8}$ inch could not have escaped observation. It may perhaps have been an ornament, but cannot possibly have been an implement.

Both Roman and British pottery were obtained at several points, but only in small fragments, all much too small for the determination of the shapes of the vessels to which they belonged. None were found along with the stone implements or under other conditions from which any useful deductions could be drawn. As regards the discovery of Roman pottery after the fall of the trilithon

in 1797, Mr. William Cunnington gives the important information contained in the footnote.[a]

Then as regards pottery of an earlier date, the discovery of a *thuribulum* 3 feet below the ground, recorded by Inigo Jones, affords no evidence either as to the age or purpose of the monument, as the nature of the ground and the conditions under which it was found are not given, and without these, in a place so honeycombed in parts by rabbit burrows, no scientific value can be attached to the occurrence of any object. It may be of very much later date than Stonehenge, even if it were found at a greater depth, for in Excavation VI. I dug up a modern preserved meat tin from a much lower layer than the stone implements in the neighbouring undisturbed ground.

As regards the stone implements, I have already partially dealt with their character and approximate age. More, however, remains to be said about them. The large number of these implements, their rudeness, and the complete absence of any of bronze might be considered to indicate without doubt that they belonged to an early part of the neolithic age, and hence that Stonehenge was of that date. But as I have previously shown, bronze tools were by no means necessary for any of the operations required, either for shaping the stones or for erecting them, and it is possible that if the early bronze age people found that stone tools were the most suitable implements to employ they would certainly have used them. So that the occurrence of stone tools does not alone prove with absolute certainty that Stonehenge belongs to the neolithic age, although it affords a strong presumption in favour of that view. But, and this is important, had bronze been in general or even moderately extensive use when the stones were set up, it

[a] "In the 'Beauties of Wiltshire,' vol. ii. p. 131, it is stated that 'pottery of Roman manufacture was discovered after the fall of the large stones in 1797, *in the soil which served for their foundation.*'

"This statement having been the cause of some misapprehension, I have been requested to publish the following information.

"The late Mr. Cunnington, of Heytesbury, first mentioned the subject to Mr. Britton, but the most important point connected with it seems to have been misunderstood. He consequently addressed a letter to Mr. Britton, in which he explained the matter fully. It is dated Heytesbury, October 22nd, 1801, and is now in my possession. He writes as follows: 'I think you should correct the statement respecting the Roman pottery found at Stonehenge. Your paragraph conveys what I never meant it to convey, namely, that the pottery was deposited before the erection of the stones. I conceive it to have been in the earth surrounding the stones, and after the fall of the trilithon the earth containing these fragments would naturally moulder into the hollows, for in this loose earth recently fallen into the cavity, the bits of pottery were found.'"—*Wiltshire Archæological and Natural History Magazine*, xxi. 149.

is in the highest degree probable that some implement of that metal would have been lost within the area of the excavations, and if so lost, it would certainly have been found together with the stone tools. Further, the employment of deer's horn picks for the extensive excavations made in the chalk around the base of the monoliths, Nos. 55 and 56, the evidence of which I have already laid before you, also tends to support the view that bronze implements cannot have been in common use. If they had it would seem not unreasonable to assume that they would have been employed, as they would have been so much more effective for such work than the picks of deer's horn.

Again, the chippings of the stones of Stonehenge in two of the bronze age barrows[a] in its neighbourhood show that it is of earlier date than they.

The copper-stained stone found in Excavation V., is, in fact, the only evidence which the excavations have yielded that copper or bronze was known. It proves their existence, but it does not prove that they had then been applied to any industrial uses.

Only a comparatively small area of the ground within Stonehenge was excavated (general plan, Plate VII.), and it may be that in further excavations some bronze implements may be found.

Until such discovery is made, I shall hold that Stonehenge was erected during the latter part of the neolithic age, or the period of transition from stone to bronze, and before that metal had passed into general practical use, and in that opinion, I think, I am fully supported by the evidence afforded by the excavations.

The difficulty of giving an exact or even approximate date to that early period, in the total absence of any aid from inscriptions or the records of ancient chronicles, will be evident to all. Yet I think the task should not, on that account, be evaded although I approach it with the greatest diffidence.

The date of the beginning of the bronze age has been computed by several distinguished archæologists. Sir John Evans proposes 1400 B.C. for Britain, but with some hesitation, and evidently is inclined to think his estimate too low. Montelius gives 2000 B.C. for northern Italy. These dates are those of the first use of a copper or bronze weapon. But in all countries where ores of copper, and especially ores of tin, as in England, were abundant and cropped out at the surface of the ground, and native copper may have been occasionally met with, there must have been a long period during which neolithic men were merely acquainted

[a] Sir Richard Colt Hoare, *Ancient History of South Wiltshire* (London, 1812), 127; W. Stukeley, *Stonehenge* (London, 1740), 46.

with these metals but unable to make any practical use of them. And there can be no question that the progression from a mere knowledge of metals, to their general application to the manufacture of implements, was extremely slow and must be measured probably by centuries.

So that, in my opinion, the date when copper or bronze was first known in Britain is a very remote one, as no country in the world presented greater facilities for their discovery. The beginning of their application to practical uses should, I think, be placed at least as far back as 1800 B.C., and that date I am inclined to give, until further evidence is forthcoming, as the approximate date of the erection of Stonehenge.

In this connection, I may cite the results of an important investigation recently made by Sir Norman Lockyer and Mr. Penrose with a view to the determination of the age of Stonehenge from astronomical data.

Their argument rests upon the assumption of the monument having been a solar temple.

They observed the point of the rising of the midsummer sun in the direction of a line traversing the middle of the avenue from a point lying midway between the piers of the central trilithon. From their observations they arrived at 1680 B.C.; + 200 years as the date of the monument, a date in close agreement with that I have ventured to propose on entirely different grounds.

Purpose and Origin of Stonehenge.

The purpose for which Stonehenge was erected, space will not permit me to discuss at length, yet it cannot be passed over in silence.

All the evidence we have, apart from the doubtful attributions of legendary lore, leads, I think irresistibly to the conclusion that it was not a sepulchre, but a place of sanctity dedicated to the observation or adoration of the sun.

If on the morning of Midsummer Day we stand in the middle of the horse-shoe curve in which the trilithons are arranged, a point once marked by the aperture between the two piers of the central and greatest of them, and look in the direction of the " hele " stone, the sun will be seen to rise approximately over the summit of that monolith.

This can hardly be accidental. It is, in fact, impossible to conceive that the arrangement of the trilithons in an open curve, with its opening directed eastwards, and more especially that the position of the central trilithon and altar

stone in relation to the "hele" stone and the avenue, can have been the result of mere chance.

If not the result of chance, this disposition of the stones must have been made with some purpose, and that purpose cannot have been other than to direct observers or worshippers to the point where the sun rose in the heavens.

A somewhat parallel case is afforded us in the surviving form of sun-worship in Japan.

There on the seashore at Fŭta-mi-ga-ura, as will be seen in Plate VI. (a copy of a print which I obtained at that ancient place), the orientation of the shrine of adoration is given by two gigantic rocks which rise from the sea as natural pillars. The sun as it rises over the mountains of the distant shore, is observed between them, and the customary prayers and offerings made in that direction.

It is, too, specially worthy of note that the point from which the sun is revered is marked by a structure of the form of a trilithon, but made of wood, placed immediately behind the altar. This representative of the trilithon is of very remote date in Japan, and has been in use there from the earliest times in connection with the observances of the ancient Shintō cult in which the Sun-Goddess is the chief deity. One of its important uses, which still survives, was to indicate the direction of the position of some sacred place or object of veneration, in order that worshippers might make their prayers and oblations towards the proper quarter.

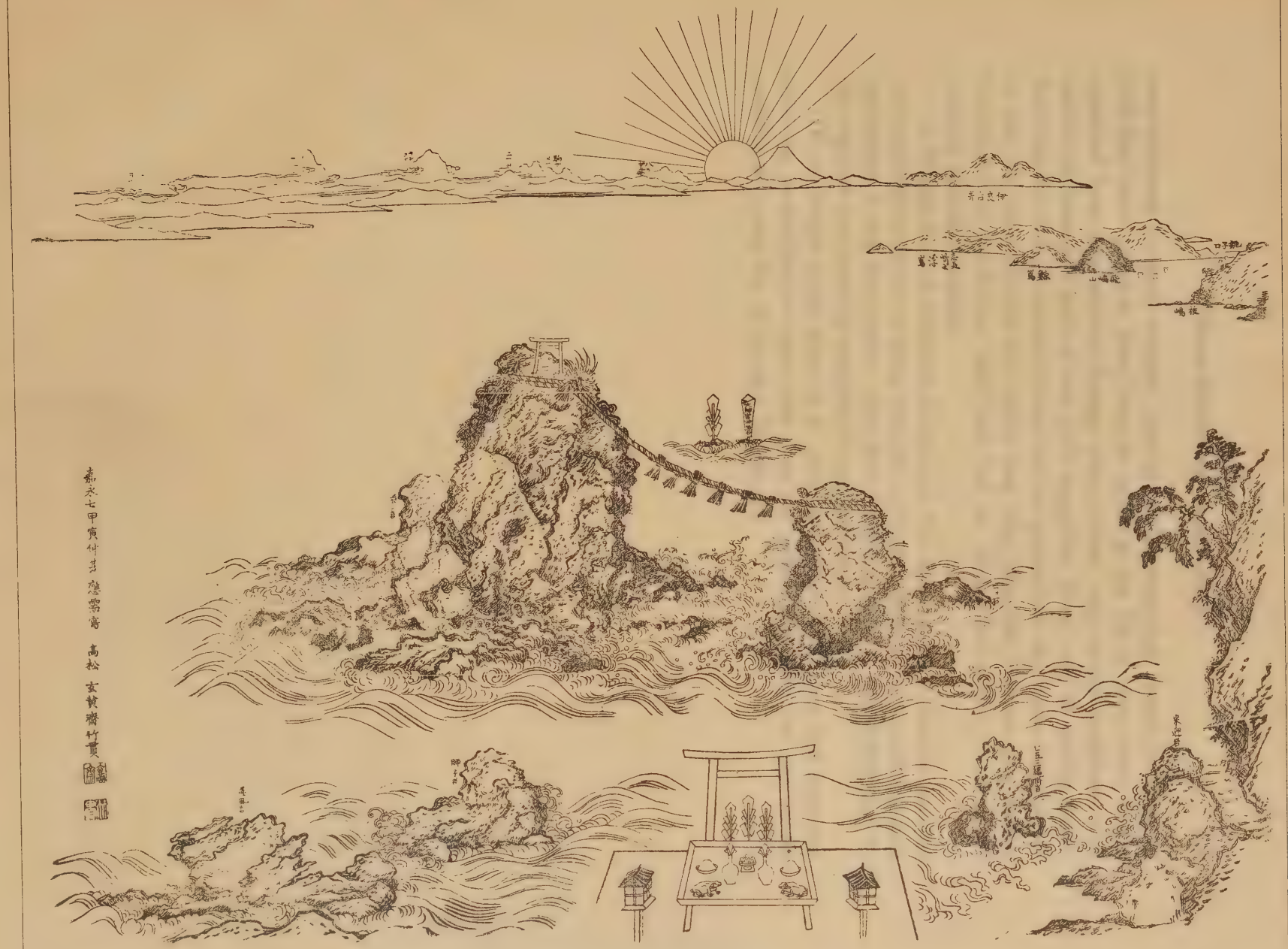
That the sun was revered by many races in the primitive period there are abundant proofs. In Britain our knowledge of the religious cult of the men of the period of transition from stone to bronze, or of the early bronze age, is extremely limited, yet very strong evidence in favour of some kind of worship or reverence of the sun is afforded by the interments in the barrows of Yorkshire and Derbyshire,[a] explored by Canon Greenwell, where "the habit was generally to place the body in the grave facing the sun."

In later days when Stonehenge had ceased to be a temple of the sun, and its sacred character had departed, it might have been used as a sepulchre, but of this there is no positive evidence, and its ascription to such a purpose would seem to have no other basis than the fanciful ascriptions of ancient legends.

Finally, as to the origin of Stonehenge.

The idea of the origin of megalithic structures from a common source has

[a] W. Greenwell, *British Barrows*, 26.



C. F. KELL & SON, PHOTO-LITHO

SUN-WORSHIP IN JAPAN. From a Japanese Print.

Published by the Society of Antiquaries of London, 1902.

been advanced by many writers. But in this connection it should be borne in mind that there seems to have been an epoch in the life of many races, widely separated from one another, during which, under very varied conditions, they erected monuments of more or less rude megalithic blocks and of similar forms. And from this it by no means follows that the practice or the forms were copied by one race from another, but rather that they were the outcome of a similar development of the human mind and had an independent origin in many and remotely separated regions.

In Britain there is abundant evidence, in the numerous rude stone monuments distributed throughout its area, that this peculiar phase of mental development had reached a very high point. Why then should we seek in distant countries for the origin of this crowning example of megalithic art?

Of its foreign origin there is, in fact, no proof, and its plan and execution alike can be ascribed to none other than our rude forefathers, the men of the neolithic or, it may be, of the early bronze age.

APPENDIX.

Description of the Excavations, containing an Account of the Nature and Contents of each Layer of Material removed.

Excavation I.

Figs. 8 and 7. Length 8 feet, breadth 3 feet, depth 7 feet.

Layers 1 *and* 2.—On account of the contour of the ground with respect to the datum line these layers did not extend over the whole area of the excavation. Layer 1, where present, consisted of turf and mould only. Layer 2 had the same composition except at its lower part near the south-west end, which was earthy chalk rubble.

In Layer 2, near the monolith, there were many articles of recent date, such as fragments of beer bottles, glasses, and crockery, clay pipe stems, hair pins, buttons, and the like. Among the roots of the turf broken pieces of flint were very numerous, not only in this but in all the excavations.

A considerable quantity of chippings and fragments of the stones occurred, especially in Layer 2, from 3 feet 6 inches to 8 feet from the monolith. They comprised ordinary sarsen and pieces of hammerstones, diabase, porphyrite, and "fissile rock" (calcareous altered tuff). Chippings of the "bluestones" were greatly in excess of those of ordinary sarsen, and consisted chiefly of diabase and porphyrite.

The following objects were found in the positions indicated by the numbers and letters attached to them:

1 HR. Fragment of grey pottery.

2 HL. Eight inches below the present surface. A Roman coin: A 'large brass' or sestertius of Commodus with figure of 'Nobilitas' on the reverse. Struck A.D. 187.

2 HR. A small round bar of iron, $4\frac{3}{4}$ inches long and $\frac{1}{2}$ inch in diameter, tapering to a point at each end.

Layer 3.—Fine mould near the stone, the remainder being earthy chalk rubble passing into chalk rubble with but little earth on the north-west side.

In the Divisions A, B, C there was the usual modern rubbish mentioned above, but also a few pieces of somewhat older bottle glass.

All the stone chippings found in the above layers were represented in this layer, and in addition there were others of argillaceous sandstone. Chippings of the "bluestones" were much more numerous than those of the sarsens, argillaceous sandstone, porphyrite, and diabase being most abundant.

There was also found part of a nodule of iron pyrites showing signs of abrasion at one edge, but whether from use or weathering it is difficult to say, also the following:

In BM. 17 inches below the datum line and 8 inches below the present surface a penny of the reign of George III. A.D. 1799.

In CL. 9 inches below the present surface a small piece of bronze wire $\frac{3}{16}$ inch long. Found together with broken bottle glass.

In DM. Minute fragment of ancient grey pottery.

Layer 4.—Divisions A and B consisted of fine mould, the remainder, from C to H inclusive, being chalk rubble with but little mould, passing into white chalk rubble.

In the middle of ABL a rabbit hole was met with, which was subsequently found to extend downwards almost perpendicularly to a depth of 3 feet 10 inches below the datum line. In it lumps of red brick and many modern articles occurred down to its extreme end.

The chippings and fragments of rock in this layer were chiefly from the "bluestones." Diabase was most abundant, "fissile rock" and argillaceous sandstone were less plentiful, porphyrite was almost absent, and there was but little sarsen.

In CL, 12 inches below the present surface a small piece of iron of irregular shape was found, and at about the same depth in CM some pieces of iridescent and of much decomposed glass.

Layer 5.—From the monolith to the end of Division B there was still fine mould, and from thence to H white chalk rubble.

Chippings of the "bluestones" were greatly in excess of those of the sarsens. All the kinds of stone were represented, diabase being more abundant than the others, argillaceous sandstone coming next in quantity.

There were also found:

In CR a well chipped flint hammerstone with edge. Fig. 17, *a*.

In DR a large splinter of deer's horn partially imbedded in a lump of chalk.

Layer 6.—All white chalk rubble for the most part resting on chalk rock except near the stone and the rabbit burrow.

Chippings of the stones were much fewer than in the above layers; those of the "bluestones" largely preponderated.

The "fissile rock" was absent, and there was but little porphyrite.

In Division BL there was a lump of diabase measuring about 3½ inches by 3½ inches with two of its sides trimmed; and in the rubble above the chalk rock a piece of a hammerstone of sarsen.

Layer 7.—Mostly chalk rock.

A splinter of deer's horn and some flint flakes only were found in this layer just above the bed rock.

Layer 8.—Nothing was found.

Layer 9.—Nothing was found excepting four or five small pieces of sarsen, and one or two of argillaceous sandstones representing the "bluestones." They occurred in the chalk rubble in Division C—DR.

The other layers yielded nothing except 12, in Division AR + 6 inches, under the sloping base of the stone where there was a splinter of deer's horn.

This excavation was carried down to a depth of 7 feet below the datum line.

Excavation II.

Figs. 9 and 7. Length 8 feet, breadth 3 feet, depth 8 feet.

There was no Layer 1. Layer 2 was imperfect, and where present consisted of turf only in which were the usual broken flints and much modern rubbish, as in the upper layers of the previous excavation.

Layer 3.—Mostly turf and mould.

Chippings of the "bluestones" were in excess of those of the sarsens. Of the former diabase and porphyrite were most abundant. The "fissile rock" was present, but in small quantity only, and there was but little argillaceous sandstone. Two large fragments of sarsen hammerstones were also found as well as a piece of a nodule of iron pyrites.

Layer 4.—From the monolith to Division B was mould with recent rubbish, and thence to the south-west end earthy chalk rubble.

Chippings of the stones were very numerous. Sarsen was slightly in excess of the "bluestones." Of the latter there was most diabase, slightly less porphyrite, still less "fissile rock," and only a little argillaceous sandstone. One or two of the pieces of sarsen were fragments of hammerstones.

The other finds were:

In HR. Two fragments of rude pottery with a black fracture containing grains of quartz sand.

In GR. A large iron nail.

In AM. A flat piece of cast iron and some much decomposed bottle glass

Layer 5.—Fine mould near the monolith. Earthy chalk rubble, passing into white chalk rubble from Division D to the south-west end.

Chippings of the "bluestones" were in very large quantities compared with those of

the sarsens. Of the former, argillaceous sandstone and diabase were most common, and both porphyrite and the "fissile rock" much less abundant.

Several fragments of sarsen hammerstones were found, and the following:

In DM. A thick piece of opaque blue iridescent glass.

In AL. In the mould against the stone a thin circular piece of bronze foil, $\frac{1}{2}$ inch in diameter (part of a button ?), together with a piece of thin hoop iron, 2 inches by $\frac{1}{2}$ inch, an iron nail, and a brass pin.

In CM. A brass pin $1\frac{3}{4}$ inches long.

Layer 6.—Earthy chalk rubble in Divisions B and C, thence white chalk rubble overlying the chalk rock.

The chippings of stone which were found occurred for the most part in the Divisions C, D, E, and $\frac{1}{2}$B. They were all "bluestones" except a few pieces of ordinary sarsen and of sarsen hammerstones.

The "fissile rock" and porphyrite were more abundant than the diabase and argillaceous sandstone.

The other finds were:

In BM. A hammerstone with edge. Flint. Fig. 14, *e*.

In BM. A hammerstone with edge. Flint. Similar to fig. 17, *b*, .

In CM. A hammerstone rounded. Flint. Weight 17 ounces.

In CM. A hammerstone rounded. Flint. Weight 19 ounces.

In CL. A hammerstone rounded. Compact sarsen. Weight 4 pounds. Similar to fig. 20, *a*.

Layer 7.– All chalk rock except Divisions C and part of B and D. In these divisions the chippings were all "bluestones" except one or two pieces of sarsen hammerstones. They consisted of porphyrite, argillaceous sandstone, and diabase only.

Layer 8.—Had the same composition as the previous layer. In CD, two pieces of sarsen, one with a tooled surface, were found.

The excavation was carried down to a depth of 8 feet below the datum line, but nothing was found below this layer except a lump of sarsen, with one of its surfaces tooled in layer 12 against the side of the monolith. A step of solid chalk, 1 foot 6 inches broad and 1 foot 6 inches high, was left at the south-west end.

Excavation III.

Figs. 10 and 7. Length 8 feet, breadth 3 feet, depth 8 feet 3 inches.

Owing to the contour of the surface of the ground here being very irregular and for the most part about 14 to 20 inches below the datum line, Layer 1 was absent, Layer 2 nearly so, and Layer 3 imperfect. What there was of the last layer consisted of turf and mould full of modern rubbish, such as was found in the surface layers of the above excavations.

Layer 4.—Divisions A and B fine mould. The remainder consisted of earthy chalk rubble on the north-west side and fine mould on the other.

Chippings of the "bluestones" were largely in excess of those of the sarsens. Of the former, diabase, porphyrite, "fissile rock," and argillaceous sandstone were present in about equal quantities. Besides these there were one or two pieces of sarsen hammerstones, two fragments of iron pyrites, and the following:

In HM, an iron nail and a thin strip of white metal $2\frac{1}{4}$ inches long and $\frac{1}{2}$ inch broad, just below the surface.

In HR, a halfpenny of George I., A.D. 1722.

A rabbit burrow began in Division ER, and traversed the ground along the side of the recumbent stone, 55*a*, which here bounded the excavation on its south-east side.

Layer 5.—For the most part earthy chalk rubble. Fine mould in Divisions A and B.

"Bluestone" chippings were present in much larger quantities than those of sarsen. All the rocks of the previous layer were present, but the "fissile rock" was most abundant, and there was but little porphyrite.

A few pieces of sarsen hammerstones were found, also two splinters of deer's horn and the following:

In CM, about 10 inches below the surface, a Roman coin, a sestertius of Antonia, mother of Claudius (?), and daughter of Marcus Antonius and Octavia. Her head is on the obverse, and on the reverse a figure of Claudius, her husband.

In DM, at about the same depth as the above, a pewter farthing of James II., and an iron nail.

In CL. A hammerstone, rounded. Flint. Fig. 20, *d*.

In HR. A hammerstone with edge. Flint. Similar to fig. 16, *c*.

In DL. A very rude axe. Flint. Class IA.

In FL and BM, several pieces of iridescent and decomposed glass.

A large rudely broken block of sarsen, measuring about 12 inches by 10 inches, by 10 inches was taken out with the material of this layer at EML.

Layer 6.—White chalk rubble, with earthy chalk rubble in the half nearest the monolith and on the south-east side, and fine mould in B. There were many chippings of the stones in this layer. The "bluestone" chippings again largely exceeded the sarsen in quantity. There was, in fact, but little ordinary sarsen, most being pieces of broken hammerstones of the compact variety of this rock.

The "fissile" rock was the most abundant, next in amount came argillaceous sandstone and porphyrite, whilst diabase was almost absent.

A fragment of a nodule of iron pyrites and the following were also found:

In EM. A small axe-like implement. Flint. Fig. 17, *e*.

In GL. The edge portion of a similar tool.

In GL. A large rudely chipped flint, which seems to have been used as an axe hammer, resembles fig. 16, *c*.

In DM. A much decomposed piece of bottle glass.

Layer 7.—In Divisions GHL the chalk rock was reached. The remainder of the layer was white chalk rubble with a little earthy chalk rubble and mould near the monolith.

The excavation of this layer was carried partly under the recumbent stone, as shown in the plan (fig. 7).

The stone chippings were somewhat fewer than in Layer 6. Again there was but little ordinary sarsen, this rock being chiefly represented by pieces of hammerstones, and "bluestone" chippings largely preponderated. The different kinds of the latter were present in similar proportions as in Layer 6, except that there was a fair amount of diabase and less porphyrite.

A piece of micaceous sandstone and the following were also found:

In DM. A large maul of compact sarsen. Dimensions $12\frac{3}{4}$ inches by $10\frac{1}{2}$ inches by $9\frac{1}{2}$ inches. Weight 64 pounds 3 ounces. Fig. 22, *b*.

In AR. A long axe, well chipped. White flint. Fig. 14, *a*

In GM. A long axe, very rude. Flint.

In GM. Axe-like hammer, well chipped. Flint. Fig. 16, *a*.

In GM. Small axe, imperfectly chipped. Flint. Fig. 17, *f*.

In DM. Large axe with double edge. Flint. Fig. 16, *e*.

In DM. Axe, very rude. Flint. Fig. 15, *c*.

In GR. Hammerstone with edge, similar to fig. 16, *c*.

In CR. Hammerstone with edge.

In HM. Hammerstone with edge, very short in comparison with length of edge.

In EM. Hammerstone with edge. Fig. 17, *b*.

In CM. Hammerstone, rounded. Weight 1 pound 3 ounces. Compact sarsen. Fig. 20, *i*

In GR. Hammerstone, rounded. Weight 3 pounds 15 ounces. Compact sarsen.

Layer 8.— In FGHL chalk rock. The remainder white chalk rubble with a little earthy chalk rubble near the monolith The stone chippings were fewer than in Layer 7 "bluestones" and sarsen being equally represented. Of the former, diabase was most abundant, and occurred together with sarsen on the bed rock. There was only a little of the "fissile rock" and still less porphyrite.

The only other find was:

In DM. A hammerstone with edge. Flint. Fig. 16, *d*.

Layers 9 and 10.—Chalk rock partly overlaid with white chalk rubble on the south-east side.

Stone chippings were almost absent, only a few of diabase being found just above the surface of the chalk rock.

In Layer 9, at 4 feet 6 inches below the datum line, a large block of sarsen, measuring 1 foot 10 inches by 1 foot 1 inch by 7 inches, was discovered under the recumbent stone. This it has been shown above was one of the blocks which had been fixed under the base of this monolith, when it was erected, to act as supports.

In 9 ER also under the recumbent stone a very rudely chipped hammerstone with edge, resembling fig. 16, *e*, was found.

This excavation was carried down to a depth of 8 feet 3 inches below the datum line, except that a step of solid chalk, about 1 foot 6 inches high and 2 feet broad, was left at the south-west end.

Excavation Q.

Figs. 12 and 7. Length 5 feet 6 inches, breadth above the chalk about 6 feet, below the chalk 3 feet, depth 8 feet.

It will be convenient to describe this excavation here, as although it was not made immediately after Excavation III., yet it adjoins it and is intimately connected with it, as they together laid bare the original site of the base of the recumbent stone 55*a*.

They yielded too nearly the whole of the stone tools which were found in the explorations. This excavation was made entirely beneath the recumbent monolith.

At its north-east extremity the large block of sarsen exposed in Excavation V. was laid bare, also a similar one adjoining it. These blocks measured respectively 3 feet 7 inches by 2 feet 6 inches by from 6 inches to 1 foot 4 inches, and 3 feet 4 inches by 2 feet 4 inches by 1 foot 6 inches.

The recumbent stone was found to be resting immediately upon them at this end, and on several similar but smaller blocks at the other only three of which could be completely dug out, the remaining two or three being firmly wedged in between the stone and others below them.

The lower face of the monolith was, for the most part, about 3 or 4 inches clear of the surface of the ground, this space being partly filled up with numerous shells of land snails.

Layers 1 to 5 were absent.

The uppermost Layer 6 and part of Layer 7 consisted of about 4 to 6 inches of mould overlying earthy chalk rubble and contained but little modern rubbish, chiefly broken glass and crockery and pipe stems, all of which were on the surface. A fragment of Roman pottery and a small ornament of bronze probably modern (may be Roman) was also found in this layer of mould.

In 6 CL‴ a large maul of compact sarsen weighing 46 pounds was found cropping out above the surface just within the south-east side of the recumbent stone. It was tightly wedged in between the latter and two large blocks of sarsen, and was extracted with difficulty.

In 6½ AM in the rubble below the mould a very large rude flint axe resembling fig. 15, *c*, and at 6 AL two small flint hammerstones with blunt edges similar to fig. 20, *d* were found.

In 6 AM there was a halfpenny of George II.

Layers 7 and 8.—These layers had to be taken out partly together owing to the impossibility of removing six large mauls from Layer 7 without disturbing Layer 8. The layers consisted of chalk rubble with more or less mould.

At the north-east end of Layer 8 the chalk rock was exposed. Both layers contained many chippings and pieces of sarsen with several fragments of sarsen hammerstones. Chippings of the "bluestones" were very much fewer than the above, and of these diabase and argillaceous sandstone were in excess of the "fissile rock," and there was but little porphyrite.

There were also three large and several small pieces of micaceous sandstone.

In these layers, together with Layer 9, three large irregularly shaped blocks of sarsen roughly broken and of the following dimensions were taken out at the south-west end:

1 foot 10 inches by 1 foot 1 inch by 7 inches.
1 foot 8 inches by 11 inches by 8 inches.
2 feet 2 inches by 1 foot 6 inches by 7 inches.

The ends of several other blocks roughly piled up on one another were seen beyond these, but not removed, as the recumbent stone was resting on them. All these blocks, as has already been shown, formed the supports of the base of this monolith before its fall.

The following stone implements were also found:

In 7 AM. Axe. Flint. Similar to fig. 17, *d*.

In 7 CL′. Axe (broken). Flint. Similar to fig. 17, *d*.

In 7 FM. Axe (much worn). Flint. Similar to fig. 15, *b*.

In 7 CL′. Hammerstone with long edge. Flint.

In 7 CL″. Hammerstone. Flint. Similar to last.

In 7 CL′. Hammerstone. Flint. Weight 1 pound 3 ounces. Fig. 20, *e*.

Six large mauls of compact sarsen as follows:

In 7 A′M. Maul. Weight 36 pounds 2 ounces.

In 7 A′L′. Maul. Weight 43 pounds 6 ounces.

In 7 A′L′. Maul. Weight 46 pounds 15 ounces. Fig. 21, *b*.

In 7 AL″. Maul. Weight 58 pounds 7 ounces.

In 7 AM. Maul. Weight 44 pounds 2 ounces. Fig. 21, *a*.

In 7½ BL. Maul. Weight 45 pounds. Fig. 22, *a*.

Also

In 7 BL. Hammerstone, rounded. Compact sarsen. Weight 1 pound 12 ounces. Fig. 20, *b*.

In 7 CL′. Hammerstone, rounded. Compact sarsen. Weight 11 ounces.

There were, besides these in Layer 7, five similar hammerstones, more or less broken, and weighing from 1 pound 6 ounces to 2 pounds 10 ounces, viz.: three in EM and two in DL.

In 7½ BM. Hammerstone. Flint. Similar to fig. 20, *d*.

In 7½ BM. Axe. Flint. Similar to Fig. 15, *b*.

In 7½ BM. Hammerstone with edge. Flint. Similar to fig. 16, *c*.

In 7½ CL. Hammerstone with edge. Flint. Similar to fig. 16, *c*.

In 7½ AL. Hammerstone with edge. Flint. Similar to fig. 16, *c*.

In 7½ BL. Axe, double edged. Flint. Fig. 16, *b*.

In 8 DR. Axe, well chipped. Flint. Fig. 15, *a*.

In 8 BM. Axe. Argillaceous sandstone. Fig. 20, *h*.

In 8 CM. Axe. Flint. Fig. 17, *c*.

In 8 CM. Axe. White flint. Fig. 14, *c*.

In 8 CM. Hammerstone with edge. Flint. Similar to fig. 16, *c*.

In 8 CM. Hammerstone with edge. Flint. Similar to fig. 14, *e*.

In 8 DL. Hammerstone with edge. Flint. Similar to fig. 16, *c*.

In 8 DL. Hammerstone, rounded. Flint. Similar to fig. 20, *d*.

In 8 DL′. Hammerstone, rounded. Flint. Similar to fig. 20, *d*.

In 8 DL.′ Hammerstone, rounded. Compact sarsen. Weight 3 pounds 12 ounces. Fig. 20, *a*.

In 8 EM. Hammerstone, rounded. Compact sarsen. Weight 1 pound 7 ounces Fig. 20, *f*.

In 8 BM. Hammerstone, rounded. Compact sarsen. Weight 1 pound 10 ounces.

In 8 M. Hammerstone, rounded. Compact sarsen. Weight 1 pound 5 ounces.

In 8 EM. Hammerstone, rounded. Compact sarsen. Much broken.

In 8½ ER. Hammerstone, rounded. Compact sarsen. Broken. One pound 6 ounces.

Layer 9 with lower part of 8.—Chalk rock at the north-east end and at the south-east side, the remainder being white chalk rubble. Chippings of the stones extended down to the chalk rock but were not very numerous. There were very few of sarsen compared with those of the "bluestones." Of the latter, diabase, argillaceous sandstone, and porphyrite were present in about equal quantities, whilst there was much less of the "fissile rock." The other finds were :

In 8½ EL. Hammerstone, rounded, well worn. Compact sarsen. Weight 1 pound 3 ounces

In this division there were also two pieces of similar but much larger hammerstones, and in 8 ER another large fragment.

In 9 EL. Axe, very rude. Flint. Fig. 15, *e*.

In 9 EL. Axe, very rude. Flint. Much broken.

In 9 EL Hammerstone with edge. Grey flint. Similar to fig. 16, *c*.

In 9 EL. Hammerstone, rounded. Broken. Compact sarsen.

Many splinters of deer's horn, from 1¼ inch to 3 inches in length, occurred in Layers 8 and 9 in the rubble overlying the chalk rock.

In this Excavation, the chalk rock was reached at from 4 feet to 5 feet below the datum line. On the south-east of the monolith, now upright (No. 56), it had been cut away so as to form a sloping wall parallel with the short side of this stone, and 2 feet distant from it at the upper edge and 1 foot at the base.

Excavation IV. See plan (Fig. 7).

This was a small excavation made for the purpose of clearing away the ground from the north-west side of the monolith to facilitate the operation of raising it.

It measured only 3 feet in length and 1 foot in breadth, and extended to a depth of 4 feet below the datum line.

Layer 1 was absent, and 2 consisted of turf only.

Layers 3 and 4 were taken out together. They were chiefly mould mixed with a little

chalk rubble and many chippings of the stones. The upper part of Layer 3 contained the usual modern rubbish.

Chippings of the "bluestones" were largely in excess of those of sarsen. Of the former, diabase, porphyrite, and "fissile rock" were present in about equal proportions, but all these taken together scarcely equalled in quantity the argillaceous sandstone, which was unusally plentiful.

Besides ordinary sarsen, there were some pieces of hammerstones. There was, too, a piece of micaceous sandstone. In 3 R, a flint hammerstone with edge fig. 16, *c*, and in 3 L a rudely chipped flint were found.

Layers 5, 6, 7, and 8 were traversed by rabbit burrows, in which there was much modern rubbish, especially pipe stems, broken beer bottles, and crockery.

There were also many stone chippings, but the ground had been so much disturbed by rabbits that their positions were not noted, nor were they collected.

The "bluestones" were chiefly represented, there being even less sarsen than in Layer 3 and 4.

The layers below 8 were taken out in Excavation V.

Excavation V. Figs. 13 and 7.

This excavation was begun immediately after the "leaning stone" had been raised to an upright position as regards its north-east and south-west sides, and before its inclination to the south-east had been rectified.

It measured 8 feet 6 inches to 9 feet in length, 5 feet in breadth, and was carried down to a depth of from 8 feet to 8 feet 3 inches below the datum line.

The material was taken out in two vertical sections, the north-west section which extended over rather more than half the area being completed before the other. The layers of both sections will, however, be best described together.

As has already been pointed out, the whole of the ground consisted of chalk rubble, which in the upper layers was more or less mixed with mould, and contained a much smaller quantity of chippings of the stones than the ground excavated on the other side of the monolith.

Layer 1 was absent.

Layers 2 *and* 3.—Neither extended over the whole area, and where present they consisted of turf and mould only.

They contained several pieces of sarsen hammerstones, also chippings of ordinary sarsen, but the latter were very much less in quantity than those of the "bluestones." The "bluestones" were chiefly represented by argillaceous sandstone and diabase, and to a lesser extent by porphyrite and "fissile rock." A few pieces of micaceous sandstone and two small fragments of ancient grey pottery were also found.

Chippings of the stones were, however, but few in these layers.

Layer 4.—Extended over the whole area to within about 2 feet 6 inches of the monolith,

where it was absent. It consisted of chalk rubble mixed with mould. In the north-west half stone chippings occurred very sparingly, and in the other half chiefly in A′ABC. Sarsen chippings were very much fewer than those of the "bluestones." Of the former there were several pieces of hammerstones. Of the latter there was most diabase and argillaceous sandstone, and least porphyrite and "fissile rock." One or two fragments of micaceous sandstone were also found, and the following :—

In HM. A coin (?) 17 inches below the turf. Mr. Grueber says of this, "I think this is a coin, it may, however, be a 'ticket.' It is Roman or early Anglo-Saxon ; if the latter it would be an ornament."

Layer 5.—Chalk rubble with a little mould extended to within about 2 feet of the monolith. A rabbit burrow ran through AB parallel with the side of the recumbent stone No. 55*a*.

All the kinds of "bluestones" and sarsen were present, the former in the greatest abundance. Diabase, argillaceous sandstone, and porphyrite were chiefly represented, there being but little "fissile rock" and only one or two fragments of micaceous sandstone. The following were also found :

In A′AM. Against the recumbent stone. Hache. Grey flint. Fig. 14, *b*.

In A′AM. Another similar to the last but very rude. Grey Flint.

In AM. Hammerstone with edge. Flint. Similar to Fig. 16, *c*.

In ABM. Lump of diabase. 4 inches by 3½ inches by 2½ inches.

In ALM. Two fragments of ancient grey pottery.

In excavating this layer a very large block of sarsen, projecting from under the recumbent stone, was discovered.

Layer 6.—Chalk rubble with a little mould. Extended to within about 1 foot 9 inches of the monolith. The rabbit burrows near the recumbent stone still continued.

The "bluestones" were largely in excess of ordinary sarsen.

Each variety of the former was present in approximately equal amounts. There were also a considerable number of fragments of hammerstones, some micaceous sandstone, and the following :

In GRM, Axe, very rude. Compact sarsen.

In AM. Rounded lump of diabase which seems to have been used as a hammerstone. Weight 6 pounds 7 ounces.

In CL. Piece of calcined flint.

In CLM. Two pieces of ancient pottery.

Layer 7.—Chalk rubble with very little mould. Extended to within about 1 foot 6 inches of the monolith.

All the kinds of stone were represented, but the chippings were fewer than in the last laye.

The "bluestones" were in excess of ordinary sarsen, but there was a considerable number of pieces of hammerstones. Diabase predominated. Other finds were :

In A′AM. Axe. Grey flint Fig. 14, *d*.

In CL. Hammerstone, rounded. Compact sarsen. Weight 12 ounces.

In F. Fragment of rude ancient pottery.

Layer 8.—Mostly chalk rubble with only traces of mould.

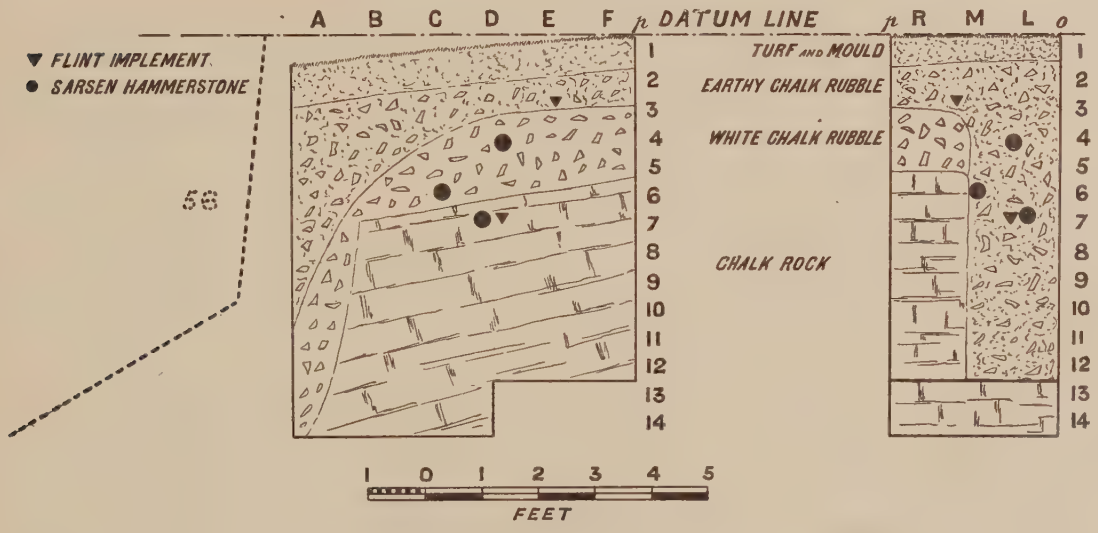
All the kinds of stone were represented. Pieces of hammerstones occurred in larger quantities than the chippings of the stones.

Chippings of the "bluestones" were in excess of those of ordinary sarsen, and there were fewer of argillaceous and micaceous sandstone than of diabase and porphyrite.

Other finds were:

In AM. Hammerstone with edge. Flint. Similar to fig. 16, *c*, but thicker at the butt end.

In ARM. Hammerstone with edge. White flint. Similar to fig. 17, *e*.


A B C D E F p DATUM LINE p R M L o
FLINT IMPLEMENT
SARSEN HAMMERSTONE
56
TURF AND MOULD
EARTHY CHALK RUBBLE
WHITE CHALK RUBBLE
CHALK ROCK
1 2 3 4 5 6 7 8 9 10 11 12 13 14
1 0 1 2 3 4 5
FEET

Section. South-west side. Section. North-west end.

Fig. 29. Excavation VI.

In HR. Small axe. Flint.

Layer 9.—All white chalk rubble. Chippings of the stones absent.

Below this layer only the following were found:

In *Layer* 13, below the base of the "bluestone" (diabase) monolith, No. 68, a piece of sarsen which had been chipped so that it could be used as a pointed hammerstone. Z. Weight 1 pound 2½ ounces. Fig. 20, *g*.

In 13 ALM. A piece of sarsen, 4 inches by 4 inches by 1 inch, with one surface tooled as in fig. 28.

In 14 AM. A flat rectangular piece of sarsen, 7 inches by 6 inches by 2½ inches, with one of its flat surfaces tooled as fig. 28, and having a very small stain of copper carbonate on the other.

Excavation VI. Figs. 29 and 7.

After Excavation V had been completed the inclination of the monolith to the south-east was remedied by means of a hydraulic jack. The stone was now perfectly upright, and Excavation VI. was proceeded with. It was 6 feet long, 3 feet wide, and was carried down to 7 feet in depth, excepting in Divisions E F, where a step 1 foot high was left.

Layers 1 and 2 consisted of turf and mould, with earthy rubble at the north-west end, and contained much broken flint. Pieces of ordinary sarsen were in excess of the "bluestone" chippings. There were also several pieces of sarsen hammerstones. Of the "bluestones" there was most porphyrite, a little less diabase, still less "fissile rock," and only a few chippings of argillaceous sandstone.

In 2 DL. A piece of ancient pottery.

Layer 3. Earthy chalk rubble passing into chalk rubble in LM½.

The "bluestones" were largely in excess of ordinary sarsen, and all kinds were present, diabase and porphyrite chiefly, with but little argillaceous sandstone and "fissile rock."

A broken sarsen hammerstone and several fragments were found, also the following:

In EM. Hammerstone with edge. Grey flint similar to fig. 14, *e*.

In FR. Three fragments of ancient pottery.

Layers 4 *and* 5.—In Divisions A, B, C earthy chalk rubble pierced with rabbit burrows. At the bottom of Layer 5 the chalk rock was reached in Divisions F R M. It was then found that this rock extended only to about 1 foot 6 inches from the south-west side of the excavation, the other 1 foot 6 inches being chalk rubble mixed with more or less earth.

Overlying the chalk there was a layer of white chalk rubble.

When the subsequent layers were taken out the chalk rock was found to have been cut away to form an almost perpendicular face in a line with the middle of the long axis of the base of the monolith No. 56.

The other half of the excavation consisted of earthy chalk rubble down to its lowest point. This was riddled with rabbit holes to a depth of 6 feet 6 inches below the surface. The chippings of sarsen and "bluestones" in this half were mixed with broken glass, crockery, pipe stems, and other modern rubbish, and were not collected. In Layer 10 in this half, at a depth of 4 feet 6 inches from the surface, a modern preserved meat tin was found in one of the rabbit burrows[a]

The following were found in the part overlying the chalk: Chippings and fragments of the "bluestones" in slight excess of those of ordinary sarsen. The former were almost exclusively porphyrite and diabase, fissile rock being almost and argillaceous sandstone entirely absent There were also several pieces of sarsen hammerstones, and a fragment of partially calcined flint.

[a] The occurrence of this modern article at so great a depth shows how absolutely necessary it is that the nature of the ground in excavations should always be recorded; and that, without this, a mere statement of the depth only at which an object is found may be of no scientific value whatever.

In 4 DL, a hammerstone which had also been used as a rubber. Weight 9½ ounces. Compact sarsen.

Layer 6.—South-west half, chalk rock overlaid by hard white chalk rubble except near the monolith.

It contained no stone chippings.

In CM there was a rude hache of compact sarsen.

Layer 7.—The south-west half consisted of chalk rock. The following occurred in the rubble of the other half:

In DL. A rude axe. Flint. Fig. 15, *d*.

In DL. Hammerstone, rounded. One part has been used as a rubber. Compact sarsen. Fig. 20, *k*.

Excavation VII. See plan (fig. 7).

This was only 2 feet 6 inches wide and extended to 6 feet from the corner of the stone. It was carried down to a depth of 7 feet, except at the west end, where a step of chalk rock about 1 foot 6 inches long and 1 foot high was left.

Layers 1 *and* 2.—Turf and mould with earthy chalk rubble.

Fragments of sarsen were more numerous than those of the "bluestones." There were also a few pieces of sarsen hammerstones.

The "bluestones" were chiefly represented by the "fissile rock" and porphyrite, there being less diabase and scarcely any argillaceous sandstone.

In 2 BM. A hammerstone with one well-rubbed face. Weight 14 ounces. Compact sarsen.

In 2 DM. A hammerstone. Compact sarsen. Weight 5 pounds 11 ounces.

Layer 3.—The ground was hard chalk rubble except in Division A and part of B, which was earthy rubble.

The stone chippings were confined to the earthy rubble, and consisted chiefly of ordinary sarsen and pieces of hammerstones. The "bluestones" were represented, for the most part, by diabase and porphyrite chips. "Fissile rock" was entirely absent.

Layer 4.—Hard chalk rubble with flints overlying the chalk rock and passing into earthy rubble at the end near the monolith. Stone chippings were extremely few, but both sarsen and diabase occurred together.

Layer 5.—Solid chalk rock.

Excavation VIII. (See plan (fig. 7).

This excavation was 2 feet 6 inches wide, 7 feet deep, and extended to a distance of 6 feet from the corner of the monolith.

The whole of the ground was chalk rubble containing more or less mould until Layer 13 was reached, where it consisted of hard white chalk rubble overlying the chalk rock.

It was so much traversed by rabbit burrows, especially below Layers 3 and 4, down to a depth of 6 feet below the datum line, that the original positions of the stone chips and implements could not be determined with accuracy. The numbers and letters on the objects

dug up in this excavation, hence, indicate the positions in which they were found and not necessarily those which they originally occupied.

Modern rubbish, broken glass, crockery, and pipes occurred at all depths in and near the burrows.

Layer 2.—Chippings and pieces of the "bluestones" were in much greater quantities than those of ordinary sarsen. Of the former the "fissile rock" and argillaceous sandstone were most common, but diabase and porphyrite were also present, as well as some pieces of sarsen hammerstones and the following:

In 2 FR. A rude axe. White flint. Similar to fig. 14, *b*.

In 2. FR. A very rude axe. Flint. Similar to fig. 17, *d*.

In this layer there was also found a copper nail with circular flat head. The surface of the head was gilt and divided into six segments by three incised lines.

Layers 3 *and* 4.—All the rocks were present.

Pieces of sarsen hammerstones and of ordinary sarsen were more plentiful than those of the "bluestones."

There was also a lump of micaceous sandstone.

In Layer 3 there was a broken nodule of iron pyrites.

The stone chippings occurring below these layers were not collected as the ground had been so much disturbed by rabbits; it was, however, noted that sarsen and "bluestone" always occurred together.

In Layer 5 at FR. Hammerstone, broken. Weight 4 pounds. Compact sarsen.

In Layer 5 at FR. Hammerstone. Weight 1 pound 4 ounces. Compact sarsen.

In Layer 5 in FL. Hammerstone with edge. Flint. Similar to fig. 16, *c*, but much shorter.

In 13 DM. A large deer's-horn pick (fig. 24) and several pieces of deer's horn were found imbedded in hard white chalk rubble just overlying the chalk rock.

Excavations A, B, C, D, E, and F.

In addition to the above excavations, six small holes, marked A, B, C, D, E, F on the general plan (Plate VII.), were dug for the insertion of the lower ends of the larch poles which were employed for strutting up the monolith. Chippings and pieces of the stones were found in all.

Excavation A. 3 feet 5 inches long, 3 feet wide, and 3 feet deep.

The chalk rock was reached at about 1 foot 3 inches below the turf, and in this space a flint hammerstone with edge, similar to fig. 17, *a*, and the following chippings of the stones were found. The "bluestones" were largely in excess of the ordinary sarsen, and consisted chiefly of argillaceous sandstone and diabase, with smaller amounts of the "fissile rock" and porphyrite.

Excavation B. 3 feet 6 inches long, 3 feet 6 inches wide, and 3 feet deep.

The chalk rock was reached at the same depth as in A. There was a much smaller quantity of stone chippings. All the stones were represented, sarsen being somewhat in excess of the "bluestones;" of the latter, diabase and "fissile rock" were most abundant.

There were, too, several pieces of iron pyrites, three small fragments of ancient pottery, and one of micaceous sandstone, just above the chalk.

Excavation C. 3 feet long, 2 feet 4 inches wide, and 3 feet deep.

Here the ground below the turf was all earthy chalk rubble. The chalk rock was not reached. There were but very few chippings of the stones, and they were accidentally thrown away.

A hammerstone of compact sarsen weighing 15½ ounces was also found.

Excavation D. 2 feet 11 inches long, 2 feet 4 inches wide, and 3 feet deep.

On the north-west, north-east, and south-east sides hard white chalk rubble, such as is usually found overlying the chalk rock, was met with at from 1 foot to 1 foot 5 inches below the surface, the remainder of the ground being earthy chalk rubble.

A moderate quantity of chippings of all the stones was found. The "bluestones" were in excess of the sarsen, and all the kinds were present, porphyrite being most abundant, and "fissile rock" almost absent.

A few pieces of micaceous sandstone and one fragment of ancient pottery were also dug up.

Excavation E. 2 feet 8 inches long, 2 feet 6 inches wide, and 3 feet deep.

At the south corner the chalk rock was reached at 1 foot 6 inches below the surface, and at other parts at a depth of 2 feet hard white chalk rubble.

Stone chippings were fairly numerous. Those of the "bluestones" largely exceeded the ordinary sarsen in quantity, but there was a considerable number of fragments of the hammerstone variety.

All the kinds of the "bluestones" were present, diabase being most abundant. There were only a few pieces of micaceous sandstone.

Two small fragments of ancient pottery were found 1 foot 3 inches below the surface, also a sarsen hammerstone weighing 1 pound 3 ounces.

Excavation F. 5 feet long, 2 feet 10 inches wide, and 3 feet 3 inches deep.

This excavation was made at the side of the south-west pier, No. 54, of the south trilithon.

The chalk rock was reached at the south-west side of the hole, about 3 feet from the surface.

About 1 foot below the turf, and to a distance of about two feet from the monolith, the entire space was closely packed with chippings of all the stones, together with two or three large lumps of sarsen, one of which measured 1 foot 6 inches by 1 foot 2 inches by 1 foot.

All these were more or less firmly cemented together with a calcareous concretion.

Splinters and pieces of sarsen hammerstones preponderated over those of ordinary sarsen, and the latter was found in much less quantity than the "bluestones;" but besides the chippings, however, several large irregular lumps of sarsen were also dug up, as stated above. As regards the "bluestones," there was much more porphyrite than diabase, and least "fissile rock" and argillaceous sandstone.

Seven small fragments of ancient pottery were found about 1 foot 6 inches below the surface, and a few pieces of micaceous sandstone.

Note on the Nature and Origin of the Rock-fragments found in the Excavations made at Stonehenge by Mr. Gowland in 1901. *By* Professor J. W. Judd, *C.B., LL.D., F.R.S., F.G.S.*

From the large collection of fragments which were submitted to me by Mr. Gowland, types of all the different rocks represented were selected, and thin sections having been made from them in the Geological Laboratory of the Royal College of Science, they were studied microscopically.

Before proceeding to detail the results of these studies, it may be well to state what had previously been done in the way of determining the exact nature of the materials employed by the builders of Stonehenge.

Sir R. C. Hoare, when writing his *Ancient Wiltshire* (1812-1820), appears to have sent to Mr. James Sowerby a small specimen of each of the stones forming the monument of Stonehenge. Sowerby described these fragments as falling into the following classes: i. "Fine-grained species of siliceous sandstone." ii. "An aggregate of quartz, feldspar, chlorite, and hornblende" (twenty-six in number). iii. One "is a siliceous schist." iv. Three others "are hornstone with small specks of feldspar and pyrites." v. "The altar stone is a micaceous fine-grained sandstone."[a]

In 1833 the Rev. W. D. Conybeare stated that "the smaller circles of Stonehenge consist of a variety of greenstone rock."[b]

Professor John Phillips in 1858 referred to Wales, Cornwall, and the elvans or greenstone dykes near Dartmoor as possible sources from which the "greenstones" of Stonehenge may have been derived.[c] He refers other rocks to the "compact felspar of Macculloch."

The same author in 1871 recorded the finding of shells in one of the blocks of sarsen at Stonehenge.[d]

In 1877 there appeared the very valuable essay of Professor N. S. Maskelyne

[a] Sir R. H. Hoare, *Ancient History of South Wiltshire*, 149, 150. Cf. *Wiltshire Archæological and Natural History Magazine*, xvi. 69, 70.

[b] *Gentleman's Magazine*, ciii. pt. ii. 452-454.

[c] See letter from Professor Phillips to Dr. Thurnam quoted in Long's "Stonehenge and its Barrows," *Wilts Archæological and Natural History Magazine*, xvi. (1876), 71.

[d] John Phillips, *Geology of Oxford and the Valley of the Thames* (1871), 447.

on the "Petrology of Stonehenge."[a] As the result of a careful study of very minute chips taken from the monoliths of Stonehenge Professor Maskelyne, who was assisted in the research by the late Mr. Thomas Davies, of the British Museum, classified the stones as follows: i. Sarsens. ii. The "grey micaceous grit of the "Altar-Stone." iii. Different varieties of "diabase" (including the majority of the so-called "bluestones") in which it was shown for the first time that augite and not hornblende was the predominant mineral. iv. Hornstones, of which it was found that four stones consisted, two of them having a "schistose structure." The microscopical characters of these rocks were illustrated in a plate, and analyses of the types iii. (Stone 33) and iv. (Stone 48) made by Dr. Prevost are given.

Professor Maskelyne in this paper refers to the numerous fragments and chips of rock found in the soil of Stonehenge, and points out that they are generally identical with the stones of the structure. He classifies them as: i. Diabasic dolerite and felsitic rock, some possessing the distinctive features of the "bluestone" monoliths of Stonehenge (these are very abundant). ii. Compact rocks with slaty cleavage. iii. Quartzose grits, with scales of brown mica or green grains (chlorite?). Professor Maskelyne's essay called attention to the great importance of the study of the monoliths of Stonehenge, and of the fragments buried in the ground within and around it. In succeeding years Mr. Thomas Davies carried these important investigations still farther by the study of specimens sent to him from time to time by Mr. William Cunnington.

On July 8th, 1881, no less than 172 chips of stone were obtained by Mr. Cunnington from three small holes at Stonehenge. These when submitted to Mr. Thomas Davies were classified by him as follows:

Diabase	39
Felsite	62
Quartzites with traces of felspar	8
Sarsen stone	9
Calciferous chloritic schist	49
Micaceous sandstone (like Altar-Stone)	5

In the paper in which this discovery is recorded,[b] it is mentioned that

[a] *Wilts Archæological and Natural History Magazine*, xvii. (1877), 147-160, with plate. See also *Proceedings of the Geological Association*, vii. 138-140.

[b] "Stonehenge Notes: The Fragments," by W. Cunnington, *Wilts Archæological and Natural History Magazine*, xxi. (1883), 141-149.

Mr. H. Cunnington had found two stumps of stones, one of diabase, and the other of schist, while the existence of buried bases of other stones had been demonstrated by probings with a pointed rod. Rock-fragments similar to those found within the enclosure of Stonehenge were also collected from several barrows in the vicinity. Some of the specimens, with sections from them, illustrating the fragments from Stonehenge which were examined by Mr. Thomas Davies for Mr. William Cunnington, are still preserved in the Mineralogical Department of the British (Natural History) Museum at South Kensington.

In 1893 Mr. William Cunnington submitted to Mr. Teall a collection of sections made from fragments, which were collected "mostly with rare exceptions, as noted, from under the turf within the area of the building" at Stonehenge. The thirty-four slides examined by Mr. Teall enabled him to class the rocks from which they were cut as follows:[a]

Diabases	10
Felsites	6
Calcareous chloritic schist	7
Grits and sandstones	5
Unnamed rocks (all of one type, of igneous origin and intermediate composition, but in a very unsatisfactory state of preservation)	6

One of the sandstones was glauconitic, while one of the "calcareous chloritic schists" and one of the diabases were taken from the stumps of stones discovered by Mr. H. Cunnington in 1881.

In studying the great mass of materials collected by Mr. Gowland, I have received invaluable assistance from previous investigators of the subject. Professor N. S. Maskelyne very generously placed at my disposal his original sections made from fragments chipped from the monoliths; while Dr. H. P. Blackmore allowed me to have the loan of the fragments themselves, which are preserved in the Salisbury Museum. Mr. Fletcher of the British Museum permitted me to inspect the specimens sent by Mr. William Cunnington to Mr. Thomas Davies, with the sections made from them, while Mr. Teall gave me further information concerning the sections examined by him. I must also mention the great assistance I have received from the "Bibliography of Stonehenge and Avebury,"[b] which has been so carefully compiled by Mr. W. Jerome Harrison.

[a] "Notes on Sections of Stonehenge Rocks belonging to Mr. W. Cunnington," by J. J. H. Teall, *Wilts Archæological and Natural History Magazine*, xxvii. (1894), 66-68.

[b] *Wilts Archæological and Natural History Magazine*, xxxii. (1901), 1-169.

The Chips of Stones employed in the Building of Stonehenge.

The series of fragments selected by me from the great collection made by Mr. Gowland fall into the following classes. The comparison of them with the rocks constituting the monoliths, especially with respect to the numbers of each type occurring as fragments and in the monoliths respectively, suggests considerations of very great interest and importance, both to the archæologist and the geologist.

I. *Sarsen Stones.*—The nature and origin of these masses of sandstone have been very fully discussed by Professor T. Rupert Jones.[a] They are concreted portions of a Tertiary sandstone, either of the Woolwich and Reading beds, as suggested by Sir Joseph Prestwich, or of the Bagshot beds, as maintained by Mr. Whitaker. All the usual characters of the different varieties of sarsen are illustrated among the fragments collected at Stonehenge. With the exception of casts of rootlets and stems, fossils are almost entirely absent from these sarsens. Sir Joseph Prestwich found in one of the monoliths of Stonehenge a layer of shells,[b] but I have not detected any trace of shells in any of the fragments I have examined, nor, so far as I am aware, have shells ever been found in any of the sarsens lying on the surface of the downs. In their microscopic characters, when studied in thin slices,[c] they show great differences according to their composition and state of induration. In some cases they are coarse-grained, in others very fine-grained; the sand grains of which they are composed are sometimes well rounded, at other times angular. Other minerals present in them besides quartz are felspars, more or less altered, mica, and glauconite, while chips of flint are in some cases not rare. The grains sometimes show only a small quantity of cement between them; at other times this siliceous cement is large in quantity and the outlines of the original grains can be traced only with difficulty, the rock being almost undistinguishable from a quartzite. Occasionally the cement around the grains

[a] "History of the Sarsens," by Professor T. Rupert Jones, Part I., *Wilts Archæological and Natural History Magazine*, xxiii. (1886), 122-154; Part II. *Geological Magazine*, Dec. IV. viii. (1901), 54-59 and 115-125.

[b] Prestwich, *Geology of Oxford and the Thames Valley* (1871), 447.

[c] "Note on the Structure of Sarsens," *Geological Magazine*, Dec. IV. viii. (1901), 1.

shows the radiated or spherulitic appearance which is so well known in the case of the Ightham stone described by Professor Bonney.[a]

All of these various features may be found in different specimens of the sarsens which occur among the fragments found in the excavations at Stonehenge. Of the relative paucity of the fragments of sarsen found in the excavations, when compared with those of the "bluestones" and other rocks, I shall have to speak further in the sequel.

II. *Ophitic Diabase.*—These rocks have been fully described by Professor Maskelyne, and all the varieties which he mentions as occurring in the "bluestone" monoliths of Stonehenge find their parallels among the fragments collected in the recent excavations. The rocks differ greatly in size of grain, some being coarse-grained and porphyritic, others being comparatively fine-grained and almost compact in structure. The ophitic character is in some cases much more marked than in others. The rocks differ also greatly in the amount of alteration they have undergone. In some cases the felspar (labradorite?), the augite, and the magnetite or titanoferrite are all quite fresh and unchanged, so that the rock might be called an "ophitic dolerite." More frequently the felspar has been largely converted into epidote and zoisite (with secondary albite), the augite into various chloritic minerals, and the titanoferrite into leucoxene.

III. *Highly altered Basic Tuffs and Agglomerates.*—These rocks are generally of a fissile character, and some of them have been variously referred to by different authors as "schistose rocks" and "calcareous chloritic schists." They consist of chlorite and leucoxene, with various colourless minerals (zoisite, albite, etc.), the products of the alteration of minerals found in basic lavas. In many cases the rock is evidently made up of more less angular fragments, and not unfrequently these fragments are vesicular, the vesicles being filled with crystalline calcite. In consequence of this, most of these rocks effervesce freely with acid. It is evident that the rocks are of volcanic origin, and are ancient basic tuffs and agglomerates. In some cases the amount of alteration which they have undergone is extreme; only traces of their original clastic character can be detected, and the rocks have evidently become more or less foliated in structure. The number of fragments of rock of this type is so great that it is probable a number of stones of this kind were used in building Stonehenge. Owing, however, to their fissile character, and the ease with which they succumb to weathering agencies, all seem to have dis-

[a] *Geological Magazine*, Dec. IV. v. (1888), 299.

appeared except a stump, which was discovered by Mr. H. Cunnington in 1881,[a] and referred to by Mr. W. Cunnington as S 28 of his plan.

IV. *Altered Rhyolites and Dacites.*—These rocks have been variously referred to by previous authors as "hornstones," "porphyrites," and "felsites." They are probably the compact felspar of Phillips. One striking porphyritic variety has often been referred to under the name of "black quartzite with felspar crystals." It has occurred not only among the fragments which were obtained by Mr. Gowland, but also in the series of specimens collected from the surface by Mr. Cunnington, while one large piece was found in one of the barrows (No. 41, Hoare's map). It is probable that a stone consisting of this material once existed at Stonehenge, but has now disappeared. The striking appearance of the rock would probably lead to "specimens" being frequently knocked off from it, and thus, in the course of years, the whole stone may have disappeared.

All of the rocks of this class show very strikingly the "fluxion structure," and there is no doubt that they represent old lavas of a viscid character, in which the material has been drawn out in the direction of the flow. Professor Maskelyne has remarked upon the existence of clastic structure in the Stones 38, 40, 46, and 48 of the plan. This would seem to indicate that these stones represent not lavas but tuffs or agglomerates composed of lava-fragments. But upon this point I would suggest that a brecciated appearance is often exhibited by true lavas, like the well-known "piperno" of the Pianura near Naples. Indeed the name of "eutaxites" of Fritsch and Reiss, and the term "eutaxitic structure," are recognition by petrographers of the fact of the existence of such "brechoidal" lavas. Mr. Rutley has shown that the celebrated porphyry of Djebel Dokhan, the original *profido rosso antico*, often shows the same brecciform structure. From the analysis of Dr. Prevost of the Stone 48 of the plan, and from the microscopic characters of all these rocks, it is evident that they represent old lavas of acid composition, which were either originally hornstone-like in structure ("hornsteinartig") or more probably were more or less perfectly glassy, and have acquired their present hornstone-like lustre by secondary devitrification. Dr. Prevost's analysis, showing an excess of soda over potash, points to the conclusion that they were rather quartz-andesites or dacites than rhyolites. Some of them may have been, as suggested by Professor Maskelyne, the consolidated and altered tuffs of such lavas.

V. *Sandstones, Grits, and Quartzites.*—The rock of the "altar-stone," a micaceous sandstone, appears to be represented among the fragments dug up,

[a] *Wiltshire Archæological and Natural History Magazine*, xxi. 142.

and there are other more highly micaceous and very fissile varieties of sandstone among the fragments found. The rock of the altar-stone was thought by Professor John Phillips to resemble certain Devonian and Cambrian rocks; Professor Maskelyne pointed out its similarity to the well-known stone in the Coronation Chair, which, as Sir Andrew Ramsey showed, is almost certainly Old Red Sandstone from Perthshire; the late Mr. Thomas Davies states that a very similar rock of Devonian age is found outcropping at Frome in Somerset. The more fissile and very micaceous varieties among the fragments are so similar to the Yorkshire flagstone, that there can be very little doubt of their derivation from rocks of Carboniferous age. With the sandstones are some quartzites, which do not appear to be indurated sarsen stones, but must be probably referred to true quartzites, like those of the Stiper Stones, Hartshill, etc. Altogether among these siliceous rocks we appear to have possible representatives of various pre-Cambrian and Palæozoic sandstones.

VI. *Greywackés.*—These are rocks consisting mainly of grains of quartz and of much altered felspar, with more or less argillaceous matter. They belong to the class of rocks so fully represented in the Scottish Borderland, and have evidently been derived from the more or less imperfect disintegration of crystalline rocks. Although such rocks are especially abundant in the Scottish Borderland, similar materials are found in the Lake District, North Wales, and Devon and Cornwall. Their absence from the "bluestones" of Stonehenge, while they are represented in considerable numbers among the fragments from the excavations, is doubtless due to their fissility and ease of decomposition. Stones of this kind set up on edge and exposed to the action of frost could not withstand such agencies like the "diabases," "hornstones," and "sarsen-stones," which constitute the survivors of the Stonehenge assemblage of monoliths. There are numerous gradations between the areno-argillaceous rocks and the more purely argillaceous flagstones and slates.

VII. *Argillaceous Flagstones and Slates.*—Among these we have a perfect gradation from coarse imperfectly fissile rocks, with more or less sandy material in their composition, to very pure argillaceous rocks which may be described as clay-slates. Like the rocks of the last group, these flagstones and slates would be especially liable to break up under the action of frost, especially when the fissile masses were set with their cleavage planes vertical.

VIII. *Glauconitic Sandstone.*—A few fragments of a fine-grained sandstone with glauconitic grains occurred. A similar rock containing foraminifera was also among the fragments of which slides were sent by Mr. Cunnington to Mr. Teall.

These rocks were probably Cretaceous in age (Upper Greensand?). Their presence may be accidental, though it is just possible that a boulder of this kind might have been utilised by the architects of Stonehenge.

IX. *Flints*, both in their ordinary condition and whitened or bleached condition, occur. These are probably fragments broken from the flint-tools in working, or sometimes, it may be, fragments struck off in renewing the points of the tools. The flint fragments do not seem to be sufficiently numerous to suggest that in either of the comparatively small excavations made we have come upon a "workshop" where the rude flint-tools were fashioned. It is not at present possible to say, therefore, whether the flint-tools were made at Stonehenge or elsewhere. One of the whitened chalk-flints showed in thin sections specimens of *Globigerina cretacea*, with sponge spicules and traces of other fossils.

Most of these rock-fragments are perfectly angular, and would appear to have been struck off from the monoliths during shaping and dressing, or from the stone tools used in the work.

Only the hardest and most durable of the rocks among the fragments (diabase and rhyolite, etc.) are found to be represented among the existing stones in the "bluestone" circles of Stonehenge. The basic tuffs, the greywackés, the flagstones, and the slates are all rocks which, as we have seen, are softer, more easily broken, and at the same time more susceptible to the action resulting from atmospheric changes than the diabases and rhyolites (hornstones). As we have already pointed out, rocks of a fissile character when set on end would be quite unable through a long series of years to withstand the constant alternation of rains and frost.

The two "bluestone" circles of Stonehenge probably contained originally 30 and 15 upright stones respectively, of which only 19 of the former and 11 of the latter remain. Possibly imposts existed originally for each pair of bluestones, like the Stone 150, the only one of the kind which can now be identified. It has sometimes been assumed that Stonehenge was a monument that was never completed. I would suggest, on the contrary, that it was a completed monument of which only the most durable materials have survived the action of weather and the ravages of time.

It is a very significant circumstance that Mr. Cunnington found the base of a "schistose" upright in the outer "bluestone" circle between the Stones 32 and 33 of the plan, and the gaps in both the bluestone circles are strikingly suggestive of a considerable number of stones having disappeared.

Rocks used as Tools by the Builders of Stonehenge.

The materials employed as mauls and axes, of which such an interesting collection was made by Mr. Gowland, are also worthy of some attention. From small chips broken from the eight mauls, with which Mr. Gowland has supplied me, I have had sections cut. They all prove to be masses of "sarsen" of exceptional hardness and induration, approaching quartzite in texture. They have evidently been selected for the work in which they were employed owing to their great hardness and toughness.

The chief features of the rock of these several mauls are as follows:

1 is a very fine-grained rock of great hardness. The cement between the grains is so tough that many of the quartz particles are broken across in the fractured surface, giving rise to a peculiar lustre. Under the microscope the rock is seen to be made up of quartz-grains, mostly subangular, with some partially decomposed felspar and black magnetite (?), the whole evidently derived from crystalline rocks (granite, etc.). The siliceous cement between the grains is almost entirely crystalline.

2 is very similar to the last, but with some coarser grains. The siliceous cement between the grains, however, is less perfectly crystallized, and under the microscope with polarized light resembles the polysynthetic quartz in cataclastic rocks.

3 is similar to 2, with the exception that the siliceous cement between the sand-grains is still less perfectly crystallized and is almost chalcedonic in character.

4 is almost identical in character with 2, consisting of grains of sand of very unequal size.

5 is much coarser in grain than any of the preceding varieties, and the siliceous cement between the large sand-grains is of a perfectly chalcedonic character.

6 is very similar to the last, being rather coarse-grained, but with the chalcedonic cement assuming a somewhat radiated structure around the sand-grains.

7 is a fine-grained rock, very similar to 1 in the size and character of the sand-grains, but the cement is chalcedonic rather than perfectly crystalline.

8 is a much coarser-grained variety with a chalcedonic cement. In 6 and 8 the radiated fibrous quartz crystals give an appearance resembling that of the well-known Ightham Stone, described by Professor Bonney.

The other smaller hammers are fragments of crystalline rocks and quartzite, such as might be obtained in any glacial drift or gravel deposit. The flints of which the axes are made do not offer any special points of interest. They may have been obtained in the immediate locality.

Sources from whence the Materials of Stonehenge were derived.

That the great sandstone monoliths of Stonehenge were originally "grey-wethers" lying upon the surface of the Chalk Downs, probably at no great distance from the spot where the structure stands, there can be no reasonable doubt. The comparative paucity of fragments of sarsen-stone, especially those of large size, in the excavations recently made, points to the conclusion that these large monoliths were selected for their size and shape, and then rudely trimmed *at the spots where they were found.* Only the final dressing of the surfaces of the stones, with perhaps the carving of the tenons and mortices, would appear to have been left to be executed at the place of erection. It is scarcely conceivable that in dealing with the transport of such bulky and heavy masses the builders of the monument would not have reduced the weight of the stones as far as possible before attempting their removal. The proportion of sarsen to other fragments in the soil of Stonehenge fully supports the conclusion that the rough dressing was performed before the stones were brought to the place of erection.

With respect to the "bluestones," it is no less obvious that they were for the most part chipped into the required forms and dressed *near the place of their erection.* This is shown by the circumstance that, within the limited area of the recent excavations, such a very large quantity of angular chips of these "bluestones" have been found.

This fact, I think, completely negatives the old traditions concerning Stonehenge, that it consisted of a circle of "bluestones," which had acquired a certain sanctity in a distant locality, and had been transported from the original home of the tribe, when it emigrated or was driven to Salisbury Plain, or that it was a trophy of war, the larger monoliths being afterwards erected around the primitive sacred stone-circle. If this had been the case, it is impossible to believe that stones regarded with such veneration, and transported with such difficulty from distant localities, would have been reduced to something like half their bulk (as they must have been in many cases) before re-erection.

Many attempts have been made to suggest a probable locality from which the "bluestones" of Stonehenge may have been brought. These have all been based upon the assumption that the present standing stones represent the whole of the "foreign rocks" employed. As we have seen in the preceding pages, however, the "bluestones" now remaining at Stonehenge probably represent only the hardest and most durable of the materials employed, many stones of soft and

fissile character having disappeared entirely, owing to the action of the weather and the assaults of relic-mongers, during the long period of the existence of the monument.

The older authors like Conybeare have insisted that the nature of the stones is not inconsistent with the tradition that the circle was transported by a tribe from Ireland from the neighbourhood of Kildare?

Professor John Phillips suggested Wales, Cornwall, and Dartmoor as possible localities from which the "bluestones" of Stonehenge may have been brought.

The late Sir Andrew Ramsay wrote as follows: the "bluestones" "do not resemble the igneous rocks of Charnwood Forest, and without asserting that they came from Wales or Shropshire, I may state that they are of the same nature as the igneous rocks of part of the Lower Silurian region of North Pembrokeshire, of Caernarvonshire, and of the Llandeilo flag district of Montgomeryshire, etc., west of the Stiper Stones."[a] Professor Maskelyne was inclined to regard North Wales or Cumberland as the districts from which the stones might have been derived.[b] Mr. Teall points out that diabases of the Stonehenge type are widely distributed in the South-west of England, and that all the rocks of which he had seen fragments from the soil "belong to types which are undoubtly represented in the West of England."[c]

But all attempts to suggest a locality in which all the "bluestones" might have been found by a primitive tribe and transported by them to Salisbury Plain are confronted with one grave difficulty. Is it conceivable that these skilful builders would have transported such blocks of stone *in their rough state* over mountains, hills, and rivers (and possibly over seas), in order to shape them at the point of erection, when the rough-hewing of the blocks at the place where they were found would have so greatly diminished their weight and the difficulties of their transport? The same people, as we have seen, in dealing with the blocks of sarsen-stone (which were probably moved only a few hundreds of yards) would appear to have left only the final dressing to be done after their transport, and to have reduced their weight as far as possible before removal.

I have long believed that the explanation of the true source of these "foreign rocks" is to be found in the circumstance that such materials are constantly found

[a] *Memoirs of the Geological Survey of England and Wales.* Geology of part of Wiltshire and Gloucestershire (sheet 34) (1858), 43.

[b] *Wilts Archæological and Natural History Magazine*, xvii. (1877), 157.

[c] *Wilts Archæological and Natural History Magazine*, xxvii. (1894), 67.

transported as boulders of the glacial-drift. It is true that the "southern limit of the boulder clay" is usually placed by geologists considerably to the north of Wiltshire; but it is a well-known fact that scattered boulders often occur far to the south of this limit. The sheets of boulder clay which now cover so large a part of the country are merely relics of an originally much more widely spread formation.

In many places the boulder clay has been greatly diminished in thickness by denudation, and deep valleys have been cut through it by the existing rivers. Many tracts where the boulder clay was thin have probably been swept quite bare of the formation, except for the larger boulders that would be left behind. A proof of this is found in the fact that the gravels of the rivers of the south of England, including those which drain Salisbury Plain, contain many fragments of "foreign rocks" which must have been derived from the boulder clay, and among these it would not be difficult to select representatives of the "bluestones" and fragments from the soil of Stonehenge. I have myself seen a boulder of a slaty rock, comparable in size to the largest of the "bluestones" of Stonehenge, on the hills to the south of London.

It may doubtless be objected that such large boulders of foreign rocks do not now occur anywhere upon Salisbury Plain. But it must be pointed out that rocks of considerable hardness and durability are everywhere sought for and utilised for millstones, gateposts, and for road-metal. Even the widely distributed sarsen-stones are rapidly disappearing, the blocks, especially the harder ones, being broken up and carried away for building stones and road-metal; and it is certain that the much more sparsely distributed boulders would, from their peculiar characters, be the first to attract attention, and be gradually removed by the races of men who have successively inhabited the district. In the South of England large boulders of granite and other large rocks when found, as they occasionally are, if not preserved as "curiosities" like that on Southsea beach, very soon disappear, being broken up and utilised in various ways.

In conclusion then I may repeat my conviction that if the prevalent beliefs and traditions concerning Stonehenge were true, and the "bluestone" circles were transported from some distant locality, either as trophies of war, or as the sacred treasures of a wandering tribe, it is quite inconceivable that they should have been hewed and chipped, as we now know them to have been, and reduced in some cases to half their dimensions, *after having been carried with enormous difficulty over land and water, and over hills and valleys.* On the other hand, in the

glacial drift, which once probably thinly covered the district, the glacial deposits dying out very gradually as we proceed southwards, we have a source from which such stones might probably have been derived. It is quite a well-known peculiarity of the glacial drift to exhibit considerable assemblages of stones of a particular character at certain spots, each of these assemblages having probably been derived from the same source.

I would therefore suggest as probable that when the early inhabitants of this island commenced the erection of Stonehenge, Salisbury Plain was sprinkled over thickly with the great white masses of the sarsen-stones ("greywethers"), and much more sparingly with darker coloured boulders (the so-called "bluestones"), the last relics of the glacial drift, which had been nearly denuded away. From these two kinds of materials the stones suitable for the contemplated temple were selected. It is even possible that the abundance and association of these two kinds of materials, so strikingly contrasted in colour and appearance, at a particular spot, may not only have decided the site, but, to some extent, have suggested the architectural features of the noble structure of Stonehenge.

GENERAL PLAN OF STONEHENGE, 1902.

Published by the Society of Antiquaries of London, 1902.

IV.—*Excavations at Caerwent, Monmouthshire, on the Site of the Romano-British City of Venta Silurum, in* 1901. *By* Thomas Ashby, *Jun., Esq., M.A., F.S.A.*, Alfred E. Hudd, *Esq., F.S.A., and* A. T. Martin, *Esq., M.A., F.S.A.*

Read 16th January, 1902.

The work for the year 1901 began on 10th June, and was continued till 22nd October. It consisted in the excavation of the west wing of House No. 2, the rest of which had been uncovered in 1900, and of the whole of House No. 7. House No. 8, which was partly excavated in 1901, has been completed (with Block A) during June and July of the present year, 1902. Excavations were also carried on in the field adjoining the north gate, now the property of Lord Tredegar, F.S.A., the cost of which was entirely defrayed by him. As, however, these excavations are by no means complete, and many problems which they present still await solution, it has been thought better to postpone all detailed report of this portion of the work until next year.

The work on both sites was carried on under the supervision of Messrs. T. Ashby, jun., A. E. Hudd, and A. T. Martin.[a]

The point of greatest interest presented by the buildings described in the present report lies in the peculiarity of their ground-plans. Like House No. 3, described in the report for 1900,[b] House No. 2 and House No. 7 (this applies to the latter in its later though not in its earlier form) differ from the type

[a] The Committee desire to express their obligations to Messrs. Drake and Pizey, architects, of Bristol, who are in large measure responsible for the plan, and have given much time and trouble to it, and also to Mr. William Moline, of Clifton, who has kindly allowed them to make use of several photographs taken by him.

[b] *Archaeologia*, lvii. 295, *sqq.*

commonly found at Silchester in having rooms and corridors arranged round all four sides of the central court, instead of round three sides of it only. Caerwent seems, therefore, to possess a type of house, which cannot at present be exactly paralleled anywhere in Great Britain.

All the buildings with which we have to deal have been largely reconstructed, and the earlier foundations can be traced to a considerable extent. This reconstruction becomes especially interesting in House No. 7, where the progress (or the reverse) of the decorative art as exhibited in the wall plaster and the mosaic pavements can be traced. The earlier walls, where they have not been incorporated with later, are shown in outline; while the later walls which are not preserved above the level of the foundations are shown with hatched lines.

It is interesting to note that the block formed by House No. 7 and House No. 8 was taken by Seyer,[a] the historian of Bristol, though of course wrongly, to be the Praetorium. He says:

"Near the western gate I suppose stood the Prætorium. I discovered a cross wall about 90 yards in length; its breadth I found to be 2½ yards; and the lime-burner told me that what I measured was only half its breadth; for there was another wall of the same thickness, which ran close by its side, making the whole breadth 5 yards, and that this had been removed about a week ago by the owner of the field on the west side. I saw the truth of what he told me by the appearance of the ground, and can only account for it by supposing that the two walls were built at different times. . . . There are no remains of a cross wall joining this to the city wall; but the trace of the agger on which it stood is very evident: the stones have probably been long ago removed, the field being in good cultivation, and perhaps in a year or two more the thick wall above-mentioned will be only discoverable in the same manner. The other" (*i. e.* the north) "wall of the Prætorium, I suppose, went along by the side of the main street; but the turnpike road has most likely consumed its remains. Near the south-west corner of the Prætorium, on the outside, are considerable ruins, probably the remains of some building. Here they had lately, in digging up the stones, uncovered a wall, which seemed like the inner wall of a room, and had dug up two large wrought stones. One was the turned base of a column,[b] about 1½ feet high, having a square hole on the top by which to fasten it by lead or iron to the next piece of the shaft; the other stone was about 2 feet high, somewhat in shape of a cone, and this likewise appeared to be turned, and had a square hole on the top. . . . There is another stone of nearly the same shape and dimensions at the door of the first house on the left hand when you enter at the eastern gate, but I forgot to ask where it came from. All three stones are of sandstone, such as at Sudbrook Cliff, and a stratum of which, I believe, runs not far from Caerwent."

[a] See *Journal of British Archæological Association*, iv. (1848) 250.

[b] The reference is to the capital described in *Archaeologia*, lvii. 302, and fig. 5.

We now proceed to describe the several houses in detail.

House No. 2.

The building which we have called House No. 2 is very extensive, measuring 118 feet north to south, by 250 feet 6 inches east to west, that is, as far as the west wall of Room 25. No evidence, however, of its having been divided into two or more separate houses remains, and it seems to have always formed one whole.[a]

A street runs along its north side, between it and House No. 7, and extending on the west almost up to the city wall,[b] while on the east it passes along the north side of House No. 6. From trustworthy information as to the discoveries of Roman walls which have been made in the churchyard, it may be taken to have run straight on, about 50 feet[c] to the south of the parish church, and to have joined

[a] The measurements of the rooms of House No. 2 are as follows: Courtyard, 85 feet north side, 87 feet south side, 49 feet east side, 46 feet west side; Room 1 (corridor), 61 feet 3 inches by 8 feet 9 inches; Room 2 (corridor), 93 feet 6 inches by 9 feet 3 inches; Room 3, 21 feet by 19 feet 6 inches; Room 4, 21 feet by 6 feet 3 inches; Room 5, 22 feet by 32 feet 9 inches; Rooms 6 and 7 (corridor), 74 feet by 7 feet; Room 8, 14 feet 6 inches by 6 feet; Room 9, 13 feet 6 inches by 19 feet 6 inches; Room 10, 6 feet 6 inches by 19 feet 9 inches; Room 11, 5 feet 9 inches by 6 feet; Room 12, 19 feet 9 inches by 13 feet 6 inches; Room 13, 9 feet 9 inches by 19 feet 6 inches; Room 14, 12 feet 9 inches by 20 feet; Room 15, 19 feet 3 inches by 20 feet; Room 16, 16 feet 9 inches by 20 feet; Room 17, 8 feet 6 inches by 10 feet; Room 18, 14 feet by 8 feet; Room 19, 19 feet 6 inches by 20 feet; Room 20, 19 feet by 19 feet 3 inches; Room 21, 14 feet by 10 feet 3 inches; Room 22, 20 feet by 41 feet; Room 23, 48 feet 6 inches by 22 feet 6 inches; Room 24 (yard), 64 feet wide; Room 25, 12 feet by 29 feet; Room 26, 16 feet by 11 feet 9 inches; Room 27, 16 feet 6 inches by 21 feet; Room 28, 15 feet 6 inches by 17 feet 3 inches; Room 29, 23 feet 6 inches by 17 feet; Room 30, 14 feet 6 inches by 17 feet 6 inches; Room 31, 13 feet 6 inches by 13 feet; Room 32, 14 feet by 7 feet; Room 33, 19 feet square; Room 34, 12 feet by 6 feet; Room 35, 11 feet square; Room 36, 12 feet 6 inches by 7 feet; Room 37, 20 feet by 23 feet 6 inches; Room 38, 23 feet 6 inches by 23 feet; Room 39, 7 feet 9 inches by 42 feet 9 inches; Room 40, 8 feet by 30 feet; Room 41, 62 feet 9 inches by 8 feet 6 inches; Room 42, 8 feet by 16 feet; Room 43, 8 feet 6 inches by 16 feet; Room 44, 23 feet by 16 feet; Room 45, 18 feet 6 inches by 16 feet; Room 46, 6 feet by 2 feet 9 inches; Room 47, 5 feet by 2 feet 9 inches; Room 48, 5 feet 9 inches by 2 feet 9 inches; Room 49, 49 feet 6 inches by 14 feet 6 inches (average width); Room 50, 20 feet by 8 feet 6 inches; Room 51, 9 feet 6 inches by 9 feet; Room 52, 21 feet 3 inches by 13 feet 3 inches.

[b] When the mound was in existence, it must have fallen into the street which ran below and on the east of this, see pl. IX. section E F.

[c] The measurement is taken from the south wall of the old south aisle, which was about 10 feet in width. From the chancel wall the distance would be 60 feet.

the road leading to the south gate of the city precisely at the site of the old cross (see Ordnance Survey Map). It ran, therefore, practically parallel to the main road through the town, and formed an important subsidiary line of communication. It seems possible to trace a change in its level and width at the period when the north wing of House No. 2 was reconstructed.

Taking the main block first, we find that the rooms are arranged round four sides of an open quadrangular space, which was very likely a garden, as no traces of the pitching or gravel flooring which would be expected in a yard were discovered.[a] There were apparently corridors round all four sides of this central space, probably with many windows opening on to it, though this is naturally only a surmise.

The house has been much altered, especially on the north side, where an entire reconstruction has taken place, though the former plan seems to have been almost exactly reproduced. At both periods the house belonged to the courtyard type, differing from it, however, as usually seen in England, in having rooms round all four sides of the central space.

The difficulties of making out the arrangement of this house are much increased by the fact that many of the walls have been entirely removed by searchers for building materials in mediæval or modern times, leaving nothing but the foundations, and sometimes only the gravel on which they rested.

Upon each side of the east wing runs a long corridor. That on the east side (Nos. 6 and 7) extends for the whole length of the building, and its east wall is prolonged to the south until it almost reaches the north-east angle of House No. 3.[b] Of its floor no traces could be found, except close to the north wall of Room 3 and also a little to the north of this, where there is some stone flagging. Just south of this point there was an entrance from the street,[c] which ran along the east wall of the house, between it and House No. 4. The north side of this is marked by a large block of stone about 2 feet 6 inches square, up to which runs the slightly raised edging of the flags just mentioned, but the south side is indefinite, the wall having perished.

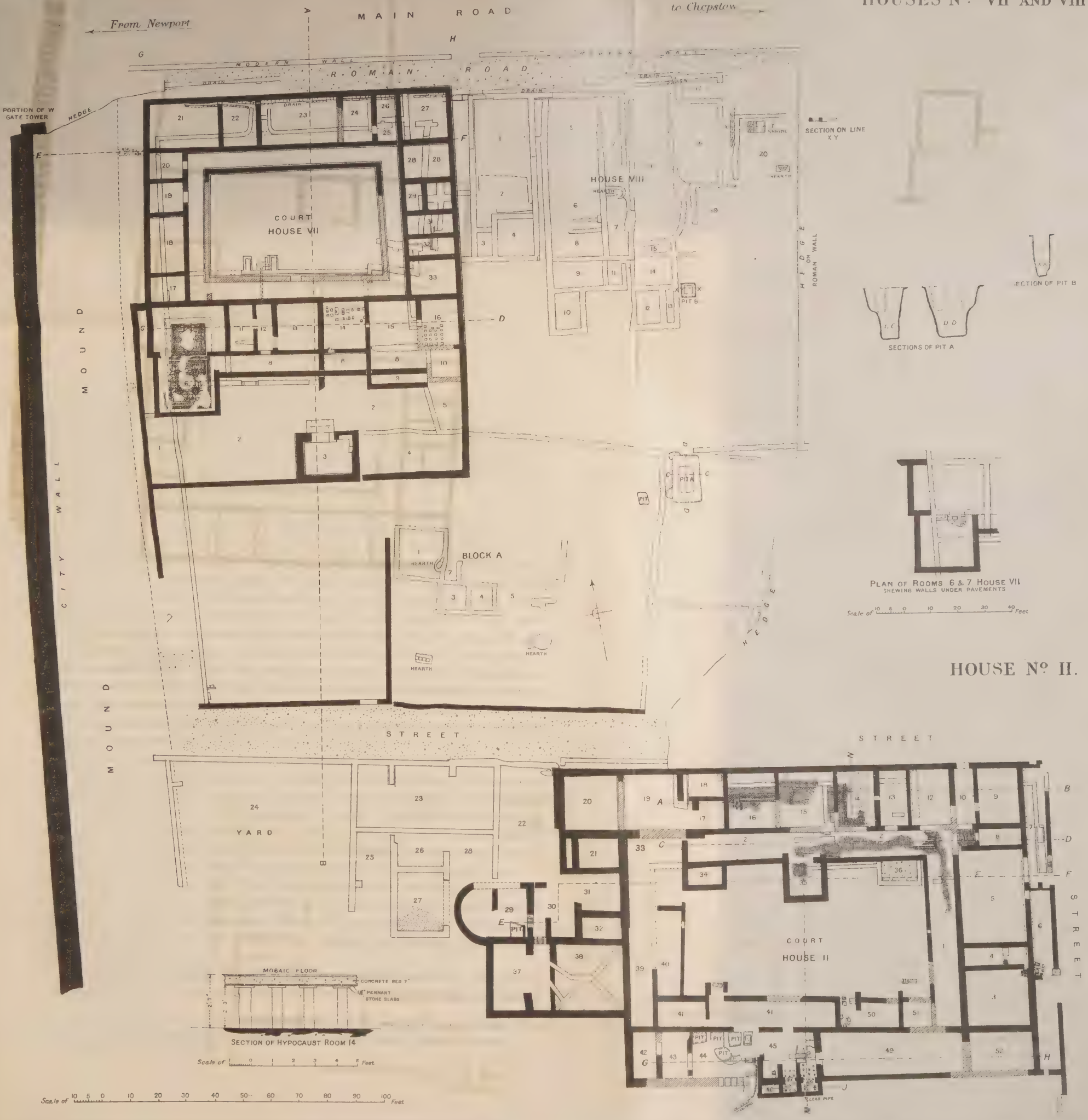
On the west of this corridor, between it and the other corridor (No. 1) are three rooms (5, 4, 3). Room 5 has lost its floor, which was once a tessellated

[a] The only thing of interest discovered in it was a fragment of a small sandstone cornice, broken into four pieces, which fitted together, the whole being 2 feet 11 inches in length.

[b] See plan, *Archaeologia*, lvii. plate xl. To the east of it are traces of a gravel floor, and a piece of concrete flooring, 3 to 4 inches thick, was found.

[c] The width of this street is 19 to 20 feet.

HOUSES Nos VII AND VIII



HOUSE No II.

C F KELL & SON, LITH.

CAERWENT.—PLANS OF HOUSES II. VII. AND VIII.

pavement. Room 4 has a mortar floor with stones bedded in it in the eastern half, and a gravel floor in the western half. In the centre on the south side is a small piece of tessellated pavement with old red sandstone *tesseræ*, which must have originally extended over the whole room, while on the north there is a door-step into Room 5. Room 3 has a gravel floor, which is clearly seen at the south-west angle, but at the north-west angle has entirely gone.[a]

The west corridor of this wing (No. 1) has a tessellated pavement of coarse old red sandstone *tesseræ*. This is actually preserved for only about half its length, but its cement bedding is traceable as far as the north wall of Room 3. Here it disappears, and no floor is traceable, except that a heap of loose *tesseræ* was found in its south-west angle. Probably there were steps of some kind, perhaps of wood, forming a means of descent to the south range of rooms in the south wing, which lie at a much lower level, but of such steps there is no trace. The original slope of the ground is indicated by the fact that near the north end the foundations begin 2 feet 4 inches, at the south end 4 feet 6 inches (fig. 1), below the set-off which carried the usual quarter round moulding. The existence of white plaster *in situ* on its west wall close to Room 36 is noticeable as being a relic of the decoration of the exterior of the house; it is obvious that when so much care was bestowed on the interior the outer walls cannot have been left rough and unmasked.[b]

The west corridor, on reaching the north-west angle of Room 5, turns to the west and runs along the south side of the north wing of the house. At the angle Room 11 opens out of it eastward, and served as a sort of lobby. It had a pavement of sandstone *tesseræ*. Out of this open Rooms 8 and 10, the latter serving as means of communication with Rooms 9 and 12. The gap on the north side of Room 10, if it is a doorway at all, which is doubtful, communicates directly with the street which runs along the north side of this house. Rooms 13 and 15 open directly into the corridor, while Room 14, which lies between them, has an entrance into Room 15 by a step descending 10 inches from a flagged threshold flush with its tessellated pavement. Room 16 had probably an entrance into Room 15, and possibly into the corridor (2). Room 17 had possibly also a narrow doorway into Room 18.

The east end of the north corridor (2) has a tessellated pavement. The border is of sandstone *tesseræ*, then comes a band of white, broader at the ends than at the

[a] Here were discovered a fine pair of millstones and also the capital of a small column, with part of the shaft. The fragment was 9 inches in height, the shaft being 7 inches in diameter.

[b] Compare *Archaeologia*, lii. 745.

sides, with a key pattern in black at the ends. In the centre is a panel 4 feet wide and 10 feet long, with scroll pattern in red, white, and black. The *tesseræ* are rather large, and the work is coarse. Further west are traces of a similar pavement, much damaged, but sufficient to show that the west half of the corridor was

Fig. 1. House No. 2, Room 1. Masonry of east wall of corridor.

decorated in the same way. The pavement has been much destroyed, owing to its nearness to the surface, it being only 3 or 4 inches below the grass in places, and to the laying of a water pipe here a few years ago.

The range of rooms to the north of the corridor, forming with it the north wing of the house, is remarkably fine and well preserved. The walls exist up to a height of 2 feet or 2 feet 6 inches, within 6 inches of the grass level, and the plaster with which they were covered still remains in position. As a rule we have only the lowest portion below the dado; it is white, generally splashed with drops of colour (black or red) from the brush. The floors of these rooms lie about on a level with the floor of the corridor.

Room 9 has a good floor of gravel concrete: the usual quarter round moulding at the foot of the walls has perished, but the projecting stone footing over which it was moulded is still traceable. In the centre of the west side was found a heap of small *tesseræ*, but no traces of any *in situ* could be detected, nor were any found elsewhere in the room.[a] There is a break in the north wall, but as the plaster goes right along the wall below it, it is probable that what looks like a gravelled sill is merely a mortar course to keep the wall dry. A similar thing is seen in the wall of No. 10 (where, however, part of the opening was probably a doorway, though not all, as is shown by the quarter round moulding, which is still preserved, though the wall has perished).

Rooms 10 and 12 have floors and wall plaster similar to those of Room 9. The gravel concrete floor[b] of Room 12 was particularly noticeable for its strength when excavations were made under it to find the walls of the earlier building, and with the exception of a small hole in the centre, is perfectly preserved. The quarter round moulding at the foot of the walls is very neat and small, 3 inches over all, 2 inches high.

Room 13 has entirely lost any floor it may have had; it was probably used to contain the fuel for the hypocaust 14, the stoke-hole of which opens in its west wall. This hypocaust has stone *pilæ* (fig. 2);[c] there are ten rows of them from north to south and seven from east to west, averaging 1 foot 9 inches in height and measuring as a rule 11 inches north to south, by 8 inches east to west, placed at intervals of 1 foot 3 inches, except near the side walls, where they are arranged less regularly. Every one of the *pilæ* was preserved *in situ*. The flue tiles which carried the hot air up the walls are also traceable, and the floor is almost perfect;

[a] Part of a small column, the capital and a portion of the shaft with the astragal in one piece, was also discovered in Room 8 (total height 1 foot 1 inch, diameter of column 8 inches), and a well preserved bronze spoon.

[b] 4 inches thick with a layer of rough stones 6 inches to 8 inches in thickness below it.

[c] The *pilæ* rested upon a floor of stone *tesseræ*, belonging to the earlier building, of which more will be said later on.

it consists of slabs of sandstone, about 2 inches in thickness. In some parts the floor is only one slab thick, with about 7 inches of mortar upon it (see section Plate IX.): in others two are laid one upon another, producing a total thickness of 5 inches, including the mortar between them.[a] At the north end an extra layer of cement between the slabs increased the total thickness to 7 inches.[b] Upon these slabs was laid a mosaic pavement, with a border of sandstone *tesseræ*, within which is a complicated geometrical design in red, white, and black; unfortunately

Fig. 2. Hypocaust in House No. 2, Room 14.

the pavement is much damaged, though enough remains for the partial restoration of the design.

The next room westwards (No. 15) is entered from No. 14 by a step, still pre-

[a] Between these slabs and the *pilæ* are small irregular pieces of sandstone. In some cases where a *pila* is too short, there are two or three such pieces on top of it to make up the necessary height.

[b] A portion of the hypocaust has been removed to the local museum at Caerwent, where it has been reconstructed.

served *in situ*, near the south end of the east wall, and from the corridor (No. 2) by a step near the east end of the south wall. It has no hypocaust under it, but had a tessellated pavement, similar in character to that of No. 14, but in rather better preservation. Both are of a much finer quality than that of the corridor.[a] The border is of sandstone *tesseræ*, and by no means of the same width all round the room.

The next room (No. 16) had a good gravel concrete floor; that of the next (No. 17) has perished. The plaster on the east wall of No. 17 was discovered *in situ*, but soon fell away, revealing neat pointing on the mortar joints between the blocks. To the north of it, and possibly connected with it by a narrow doorway, is a small room (No. 18), the white dado of which is preserved to some considerable height.

Turning now to the remains of the earlier building which lie under this wing, we find that the floors lie as a rule at a depth of 1 foot 6 inches below the upper floor level. The pavements are of plain sandstone *tesseræ*, but well laid; the wall plaster, where preserved *in situ*, is very fine, and the fragments found, which belong to the upper portion of the walls, are extremely good in colouring. The plaster of the rooms at the upper level in this wing is, on the other hand, not remarkably good. A large quantity of fragments, the greater part of which belong to the walls of the earlier building, have been collected and placed in the local museum. A detailed account of them is at present impossible, but it is hoped that the subject may be fully dealt with later on, when further discoveries have added to our knowledge.

It is probable, though not certain, that before this wing was reconstructed, there was another corridor on its north side, as well as that on the south. It seems likely that in the reconstruction the first of these was suppressed, the rooms widened slightly,[b] and, with the south corridor, pushed a few feet further north, while the street to the north of the house was also widened by about 4 feet on the south side, so that its pavement is found above the foundations of the north wall of the earlier house, the later road being 1 foot 10 inches higher than the earlier one. This was certainly the case just north of Room 18, and the fact that we have an earlier north wall just west of it (which we cannot trace further eastward owing to its passing out of the field now under excavation) may point to the truth of this supposition. At this point the upper road had

[a] Both these pavements, as well as that found at the earlier level in Room 16, have been removed to the Cardiff Museum, where they are now exhibited.

[b] From 18 feet to 19 feet 6 inches.

rougher and larger stones than the lower, which was paved with pebbles. The space between is packed very hard with a conglomerate of pebbles, sand, and pieces of limestone. Here was found a thin plaque of bronze, with a female head in relief, probably the back of a hand mirror (fig. 3). Further exploration will probably throw more light on the interesting subject of the development of the street system of the city.

Fig. 3. Bronze plaque found in House No. 2. ½ linear.

The first traces of the earlier building appear under the north end of the east corridor (7). Here we have, between the foundations of the two walls of the corridor, the external wall of the lower house; on its west side we see an angle with plaster on it, and the traces of a partition wall (now broken away) going west and falling into line with the north wall of Room 8.

The wall crossing the corridor (6, 7) just south of this earlier wall is faced only on the north side, and probably served as a retaining wall, the thicker portion in the centre being a buttress. At the north end of the corridor (7), close to the north-east angle of Room 9, where the stepping off of the foundation is worth notice, there is an area enclosed by a thin wall, faced only on the north side, and the north wall of the house, with a pebble floor 4 feet below modern ground level, and traces of burning, as if there had been a furnace of some sort here; or perhaps merely an ashpit, left open when the later house was constructed and the rest of the space filled up.

The plaster belonging to the wall decoration of this earlier house at this point is extremely fine and vivid in colour. The scheme seems to have been a wall space divided by horizontal bands representing columns, $1\frac{1}{4}$ inch wide, with several different shades boldly combined of mauve, green, etc.

The next place where the walls of this earlier house are traceable is under Room 12. The east wall of this room has a treble footing, so that the foundations of the earlier and later walls may coincide here. Slightly to the east of the foundations of the west wall and parallel to it there is a wall, the ends of which are cut off short where the foundations of the north and south walls are sunk. There is still good white plaster *in situ* on the east side of this wall. From the space under the later floor of this room came much wall plaster of the earlier house, pottery, some glass, small bronze objects, and fragments of roof tiles. Rubbish, therefore, was obviously thrown in to fill up the space when the floor of the upper room was laid; it is not likely that the hole in this floor was made in order that the space might serve as a rubbish pit.[a] To the south of this, under the north end of the Corridor 1, a wall was found a little below the later tessellated pavement. This wall ran east and west across the line of the corridor. On the south side of it there was *in situ* some white plaster; and much bright yellow plaster with green leaf decorations upon it was found here. A little further south a hole was made in the tessellated pavement, resulting in the discovery of plaster closely resembling that found in the room under Room 15. Similar plaster was found at the south end of the Corridor 1.

The west wall of Room 13 coincides with that of the earlier room, which was slightly smaller; we can trace its north and south walls going eastwards as far as the wall underlying Room 12. Its floor was of good gravel concrete and it had a

[a] The floor of the earlier room was of gravel concrete, 3 feet 6 inches below that of the later room.

doorway at the west end of its south wall. The *pilæ* of the hypocaust of Room 14 rest upon the stone tessellated pavement of the next room westward, a little more of which, with the west and north walls, can be seen at the east side of Room 15, where the upper tessellated pavement has entirely perished; after the tessellated pavement of Room 15 had been taken up the north and west walls of the next room westward of the earlier building became visible. The plaster is *in situ* upon these earlier walls; it is of good quality, with a well-marked quarter round moulding at the foot of the wall. That on the west wall of the room under Rooms 14 and 15 is white, with green splotches from the brush sprinkled over it; near the south-east angle of Room 15 there is a curved niche, in which a broad red band may be seen above the white. The fallen plaster from the higher part of the walls is exactly similar to that found under the tessellated pavement of the west corridor of the east wing (No. 1). Some of it is painted in imitation of Taenarian marble (*rosso antico*) which is red with white streaks in it. Much fine plaster came from under the gravel concrete floor of Room 16, lying between this and the tessellated pavement of the earlier room.[a] It is very vivid in colour, and the tints are so varied as to defy description. The tessellated pavement has a fine decorative pattern; the *tesseræ* are rather large, but the whole effect is good. Outside is a leaf pattern in black, then a guilloche in white, black, red, yellow, and purple, within which come geometric designs. The border is of brick *tesseræ*. The north wall of the lower room has been broken down so that the concrete floor of Room 16 might be laid on it, but the west wall of Room 16 coincides with that of the lower room and retains no less than three coats of plaster, all belonging to the earlier period, apparently plain white, but much discoloured. The next room to the west (No. 17) shows traces of three different periods of construction. The outermost west wall belongs to the earliest and latest of these, while an intermediate period is represented by the wall a little to the east of them. The gravel concrete floor of this room belongs to the earliest period, as is clear from the level at which it lies. There is also a wall under Room 18 parallel to and a little west of its east wall.

The corridor which lay to the south of this range of rooms was paved with *tesseræ* of sandstone, and its walls had a dado of yellow plaster. Its north wall has been discovered under the floor of the Corridor No. 2, and the turn of the wall where there was a doorway from it into the room under Room 14 is clearly marked. From it project to the south three small rectangular spaces, the central

[a] This lies about 1 foot 6 inches below the surface of the gravel floor, which is 4 inches thick.

one of which (35) is paved with *tesseræ*,[a] while of the other two, Room 34 was gravelled (perhaps once tessellated)[b] and Room 36 was pitched with stones. Their level shows that they form part of the earlier building, to which also belongs the wall connecting Rooms 35 and 36, which is the south wall of the corridor. The line of the south wall of Room 36 was also prolonged under the Corridor No. 1.

How much, if any, of the south and west portions of this house may have belonged to the first house, and from it have been incorporated in the second, is doubtful. We have not found in either of them any traces of foundations at a lower level; but the fact that the chief rooms of the south wing are some 8 feet lower than those of the rest of the house may point to this, at any rate, having formed part of the earlier construction, in which case it seems to have been incorporated in the later house without alteration.

The north wing of the house is prolonged westwards by a range of rooms (Nos. 19-28) which do not call for much remark, as the walls have been destroyed in several cases to the foundation level and sometimes entirely. The floors have also perished absolutely.[c]

No. 24 was apparently a large yard or garden, as no cross walls could be found. Its west wall is of later origin than the mound, which was found between the city wall and House No. 7, and dates from a time when the mound was destroyed and the ground levelled up to the city wall, for in following the inner mound slope downwards this wall had to be cut away, and the mound was discovered continuing below it and east of it. The west wall of this yard (No. 24) was once prolonged further, but is broken off irregularly on a sudden, just where its foundation cuts into the crown of the mound.

We now turn to the west wing of the house, the rooms of which are on the same level as those in the north wing. The floors have all perished, owing to the shallowness of the soil at this point, and this block is therefore comparatively uninteresting. It is, however, noticeable for the extreme solidity of its masonry.[d]

[a] This pavement, from its level, belongs to the earlier house, but the space itself was provided with new outer walls on its incorporation into the later house, while those of the other two (34 and 36) apparently remained as they were.

[b] On the east side of the east wall of 34, the lower portion of a pot 11 inches in diameter of ordinary rough black ware was found *in situ*, embedded in the ground; inside it were pieces of a smaller pot of finer ware, glazed with diagonal hatching. Why it was put there is not apparent.

[c] It is curious that the cross wall running east and west which bisects all the north and south spaces is absent in Room 22.

[d] The south wall of Room 29 descends no less than 10 feet 2½ inches before it reaches its offset,

On the east side of it there is a corridor, at first 19 feet wide (No. 33), but further south divided longitudinally into two (39, 40). At the south end of this, on the west side, there is an extremely fine channelled hypocaust (38). The hot air was conveyed under the floor in walled and cemented flues, arranged in a curiously irregular manner. How the floor was supported over the large spaces where there were no flues is doubtful; probably these spaces were filled with earth or rubble. The tessellated floor had entirely perished, but a few specimens of wall plaster were found and fragments of scored flue tiles, slightly curved. The furnace of this hypocaust was to the west of it (No. 37) there being two channels from it into the hypocaust. Tiled flues conducted the hot air hence to Rooms 30 and 29.[a] The apsidal termination of the latter room is noteworthy, though not by any means unique. A few loose *tesseræ* were all that remained of its pavement. Behind it is a small paved yard (27) apparently surrounded by a low wall, the rain water from which was carried off to the south by two open drains, 3 inches in width.[b]

We now enter upon the examination of the south wing, which seems to have been the most important, and probably contained the main entrance. It consists of a corridor on the north side, apparently subdivided by cross walls after its original construction, which is below the level of the west wing; while on the south is a long range of rooms, which lie at a level lower than that of the corridor, and above that of the north rooms of House 3.

The corridor (No. 41) does not call for much remark.[c] It starts from the south end of the western of the two corridors of the west wing, and beyond the first cross wall (on the east side of which plaster remains *in situ*) has on the north an exit to the central courtyard, flanked by short walls, with flat slabs between them (that at the north end is alone preserved)[d] resting on a gravel foundation.

the masonry, though rather rough, being very solid and strong; at the offset is a longitudinal slit 4½ inches high, probably due to the giving of the foundations, which descend 1 foot 7 inches further down. The great depth to which the wall was sunk was merely due to a desire for strength in building in what must in Roman times have been loose ground. It appeared from the condition of the soil that quite a narrow trench had been dug when the wall was built, only sufficiently wide to give room for its construction.

[a] In the former room many clinkers were found.

[b] Some clinkers and a quern stone were found here. To the west of it again a wall runs south. The walls connecting it with the rest of the building (except on the north) have, however, perished. In the angle it makes with the first cross wall to north, a black pot (ordinary type) was found *in situ*, mortared against the wall. Pots similarly deposited have been found in several houses at Silchester.

[c] Apparently it had a gravel floor, but the floors here have almost entirely perished.

[d] At this point the *tesseræ* of a mosaic floor were found, but nothing but the bedding on which it rested remained *in situ*.

Some way further on it is interrupted by another cross wall, built upon the edge of a well.[a] At 17 feet 4 inches from the top of the wall to the south of the well human bones began to appear; the scanty remains of two or more skeletons of adult males, according to Professor Sidney Reynolds.[b] Some ox bones were also found, and several bones of small birds. Below this common black and red pottery was discovered, and on the hard clay bottom (reached at a depth of 20 feet 3 inches) were pieces of a flue tile and a brick, with some blackish sediment. The well was apparently disused at the time the skeletons were thrown in, and was filled up in Roman times with large rough loose stones.[c] The well was reached from the central court by a doorway to the north, the existence of which may indicate that the well was for a time still in use after the house was built; later on this door appears to have been blocked with concrete. Just to the south of this concrete is a little stone flagging. To the east of the well the walls have been to a large extent removed, and the plan is in consequence not easy to understand. There seems to have been another room to the north of No. 50, which has almost entirely disappeared. After another cross wall we reach a small chamber (51), to the north of which is an isolated fragment of wall with a gutterstone beside it.

Turning now to the rooms on the south of the corridor, we find that at the south-west angle the walls have been removed to the level of the foundations. Here we note again a dry course of gravel concrete.

A short distance from the south-west angle was a shallow pit, which proved to contain nothing but a large amount of decorative wall plaster.[d] A precisely similar deposit was found some way further east, 9 feet to the south of the baths (46-48).

[a] This well, which was lined with stonework, was much ruined at the top, but preserved from a point 6 feet $7\frac{1}{2}$ inches below the top of the wall on the south side for a depth of 6 feet 6 inches; after this it had fallen in. The stonework was 1 foot 8 inches to 2 feet 2 inches in thickness, and gave a diameter of about 2 feet 4 inches to the well. It was found necessary to remove all the stonework in order to proceed with the exploration of the well, as it was in a dangerous condition.

[b] See *Archaeologia*, lvii. 311.

[c] Both the wall to the west and the wall to the south are built on a massive foundation of boulders mortared together; the latter wall being carried over this rough foundation by an arch.

[d] Much of it belonged to a scheme of wall decoration in which panels imitating veneering slabs of marble (the varieties known as *giallo antico* or Numidian, a yellow marble with red veining, and *bigio*, a grey marble) were separated by vertical bands $1\frac{3}{4}$ inch wide imitating columns, alternately red and grey. The rest was of the most various colours and designs, defying all attempts at restoration.

The south-west room (42) of this house, in which much charred wood was found, leads directly into the next (43) by a doorway, the stone sill of which is still *in situ*. From this room, by another doorway paved with old roof tiles,[a] and not quite opposite to that in the west wall, we enter a large room (44), which has been much altered in later times. Originally it probably formed the main entrance to the house on this side, as on the south side at the east end it has a line of five large stone blocks, each 1 foot 9 inches to 2 feet in length, giving a total length of 9 feet 7 inches, and 3 feet in width, including a 6-inch bevel. Other similar stones probably lay further to the west, but the whole of the south wall as far as the south-west angle has been removed by lime-burners or quarrymen. Close to these blocks on the north-east lie one or two others *in situ*, as if forming part of a massive platform, and another has been left on top of them by those who removed the rest. The interior of the chamber has been entirely altered in character. Just to the north of these stones there is a bank of hard yellow sandy material, to the north of which again is a curving wall, to both sides of which ash and charcoal were found adhering, and north of it again a pit, 4 feet in depth from the floor level, and 6 feet 6 inches from the top of the semicircular wall, in which nothing was found but loose stones. Almost the whole of the north half of the room was occupied by a series of three pits, precisely similar, all filled with loose stones, which were very damp and moist, as the bottom, which lay about 6 feet down, was hard clay. To the east of the pit is a rough block of stone, looking rather like the base of a pilaster, and projecting 6 inches into the line of the north wall, the foundation of which has slipped considerably. In this room some flue tiles were found with small round holes; these holes were filled by a nipple of plaster projecting from the flat surface of the wall lining, and thus the tile was supported. Along the east wall of the room runs a "box" drain, formed by rough slabs of stone; this runs past the large bevelled stones, its floor being on a level with the top of them, and along the west wall of the cold bath (No. 46) the waste water from which fell into it, to its south-west angle, where it curves away and runs south-west for a short distance, after which it apparently stops. There are no traces of top and bottom slabs in the last part of the drain, and it is quite possible that it was merely an open channel.

To the east of Room 44 is an interesting, though small, series of baths, situated to the south of a large room (45) from which they are entered. On the west is the cold bath (46), measuring 6 feet by 2 feet 11 inches, with its *opus*

[a] Two of these still show the holes for the nails by which they were fixed.

signinum lining still in good preservation. Next to it are two more baths (47, 48), on the south side of the latter of which the lead pipe for the waste water is still *in situ*, passing through the wall; the south end has been nipped off. Here again were fragments of wall plaster *in situ* on the exterior wall, from which it is just possible, though not very likely, as they are too brilliantly painted and well preserved, that the fallen pieces found to the south may have come. Both of these baths were heated by hypocausts. The floors have entirely perished. The construction of the hypocausts is interesting. The tiles which carried the *pilæ* are laid on a bed of mortar 2 inches thick, or else upon slabs of stone 1 foot 2 inches to 1 foot 4 inches square, which are laid in this mortar bed; this in turn rests upon large slabs of sandstone $2\frac{1}{2}$ inches in thickness.[a] Beneath these slabs are blocks of stone resting on a clay bottom, and measuring $4\frac{1}{2}$ inches in thickness and about 10 inches square, between which and the slabs is a layer of mortar 1 inch to $1\frac{1}{2}$ inch in thickness. The spaces under these large slabs were intended to keep the floor dry. Several flue tiles of the usual type used for carrying the hot air up the walls, and the iron T-bolts for fixing them, were also found.

The furnace by which this series of hypocausts was heated must have been to the north of the doorway in the east wall. The solid platform of the threshold of this doorway projects 2 feet 3 inches into Room 45, and the flue must have been carried immediately to the west of it, as the tiles at its west edge show. The west wall of the flue has, however, been removed, and a furnace (fig. 4) has been placed in the centre of the east side of the room. This must have taken place at a period when the hypocausts were already destroyed, as some of the *pilæ* are actually beneath the floor of the furnace. The furnace is composed of large blocks of stone, one of which is a gutter stone filched from some other building, and is similar to the east furnace (c) in House No. 1[b] (fig. 5). For what process of manufacture it was used is uncertain. Many ox and pig bones were discovered in the room. A drain carried from the south-west angle of Room 45 under the cold bath No. 46 is puzzling, and its object uncertain, but it appears to belong to the original construction and not

[a] One which we lifted measured 3 feet 2 inches by 2 feet 8 inches; another occupies the entire interior of the hot bath (No. 48), measuring 5 feet 4 inches by 3 feet 3 inches.

[b] The internal height of this furnace at the south end (the north has perished) is 2 feet 6 inches on the east side and 2 feet 1 inch on the west (where the block supporting it rests on the west wall of Room 48 prolonged) and its internal width is 2 feet 3 inches. The top block at the south end measures 3 feet 11 inches long by 1 foot 6 inches wide by 11 inches thick. There is an outlet for the drainage in the south wall of Room 48, a hole about 4 inches square, but not in any other place, though we dug below the set-off of the south wall to search for it. See *Archaeologia*, lvii. 299, for the furnace in House No. 1.

to be a later addition. The plaster with which the walls of this series of baths was decorated claims attention. The ground is white, with red and green lines; first a broad red border, then two thin green lines; then sometimes a red band; then a green line with what seems a rough representation of moss or leaves. Four large fragments pieced together show that at one point the border was arranged in the form of a dodecagon. The field was decorated with foliage roughly but cleverly drawn, not of the conventional type, but representing sprays of fern, etc.

Fig. 4. Furnace in House No. 2, Room 45.

Some of the plaster again had a large yellow circle upon the white ground, and some from its being on a curve had obviously served as the decoration of a niche.

The room (No. 49) to the east of this series of baths is interesting from its size, 49 feet in length by 15 feet 4 inches in width at the west end and 13 feet 6 inches at the east. The divergence from the right angle is rather the rule than the exception in the houses which we have examined at Caerwent, and has intro-

duced an additional element of difficulty in planning them. The plaster upon the walls is white, decorated with splotches of red paint from the brush, roughly arranged in upward curves. Above this is a red band 3 inches broad, above which there is a white field divided into panels by thin vertical lines of black and red. The fragments of plaster from the upper part of the walls do not fall in with this scheme of decoration, which must therefore have been altered a few

Fig. 5. Furnace (c) in House No. 1.

feet higher up. The field seems to have been dull yellow, with a thin white line round it.

The west wall is completely preserved, with the doorway leading into Room 45, which is neatly recessed, but all the other walls have been more or less destroyed. No traces of any but a gravel floor were discovered. The difference of level between this room and the Corridor No. 1, which abuts on it on the north at the north-east angle, has already been noticed.

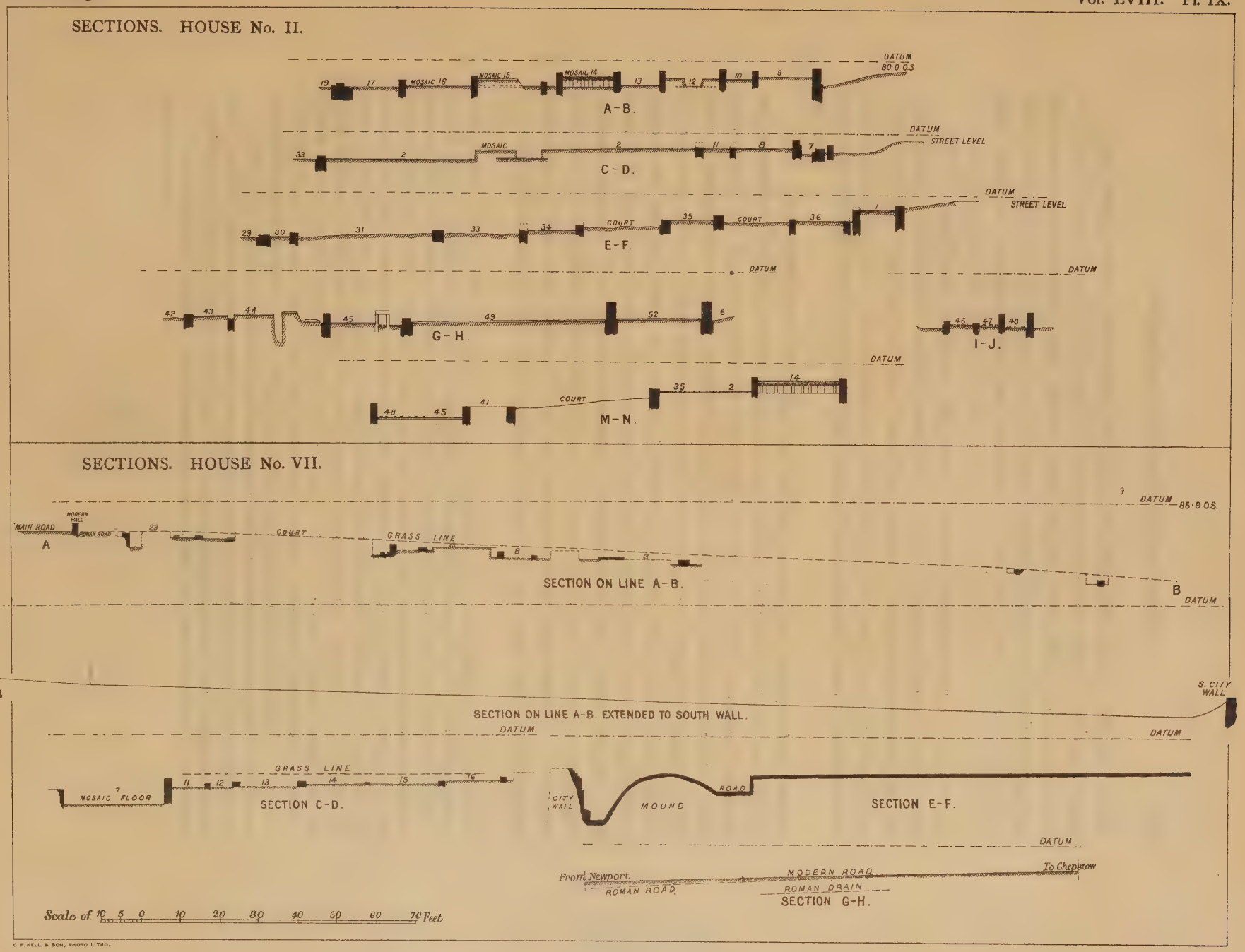
The series of rooms in this wing is closed by a fairly large room (52), at the same level as Room 49. No traces of either the wall decoration nor the flooring were discovered, and its use must remain uncertain.

House No. 7.

House No. 7 is a large house of the courtyard type, having rooms on all four sides of the central space. It occupies the site of an earlier house of the same type, but with rooms on the south side only of the courtyard, many of the walls of which have been incorporated with the later building, while others have been suppressed or built over. The west wall of this earlier house was arranged with reference to the road which ran below the inside slope of the mound, its outer wall bordering upon it. This road was 14 feet in width, and gravelled: it appears in many places between the earlier and later west walls of the house, having been covered up when the house was reconstructed. With regard to the mound, it seems unadvisable to say anything until further progress has been made with the excavation of the ground immediately within the city walls. Its profile may be seen on the section (Plate IX). It is constructed of hard reddish clay, which contains small pebbles and bits of charred wood, and was probably the means by which the place was defended before the town walls were built. It is further not unlikely that Caerwent was in origin simply a fortified camp constructed to defend the high road which still passes through the centre of the modern village, and that after the Second Legion was established at Caerleon, nine miles further west, it became a country town.

After the town wall had been built, and the mound and the road on the inner side of it covered over with soil, a new outer west wall was built in the north part of the house, while south of Room 6 the old west wall continued in use. From the north-west angle of Room 7 a roughly built wall runs westwards for 3 feet, and then turns to the south. It continues to run parallel to the west main wall of the house until, at a point opposite to the middle of the yard, it stops abruptly, having been entirely destroyed. The space between it and the west wall of Rooms 6 and 7 is too narrow to have served for any purpose but to keep these rooms dry after the accumulation of soil above the mound, the crown of which is no less than 4 feet above the level of the pavements of these rooms. Further south, however, the interval becomes wider, the older west wall being here still in use, and it may have served as a passage (No. 1).[a]

[a] The measurements of the several rooms are as follows: No. 1, 9 feet by 24 feet; No. 2, 91 feet 6 inches by 38 feet; No. 3, 16 feet 3 inches by 12 feet 6 inches; No. 4, 37 feet by 14 feet 6 inches; No. 5, 10 feet by 17 feet 3 inches; No. 6, 20 feet by 20 feet 3 inches; No. 7, 26 feet by 17 feet 6 inches; No. 8, 74 feet 3 inches by 6 feet; No. 9, 20 feet by 3 feet 3 inches; No. 10,



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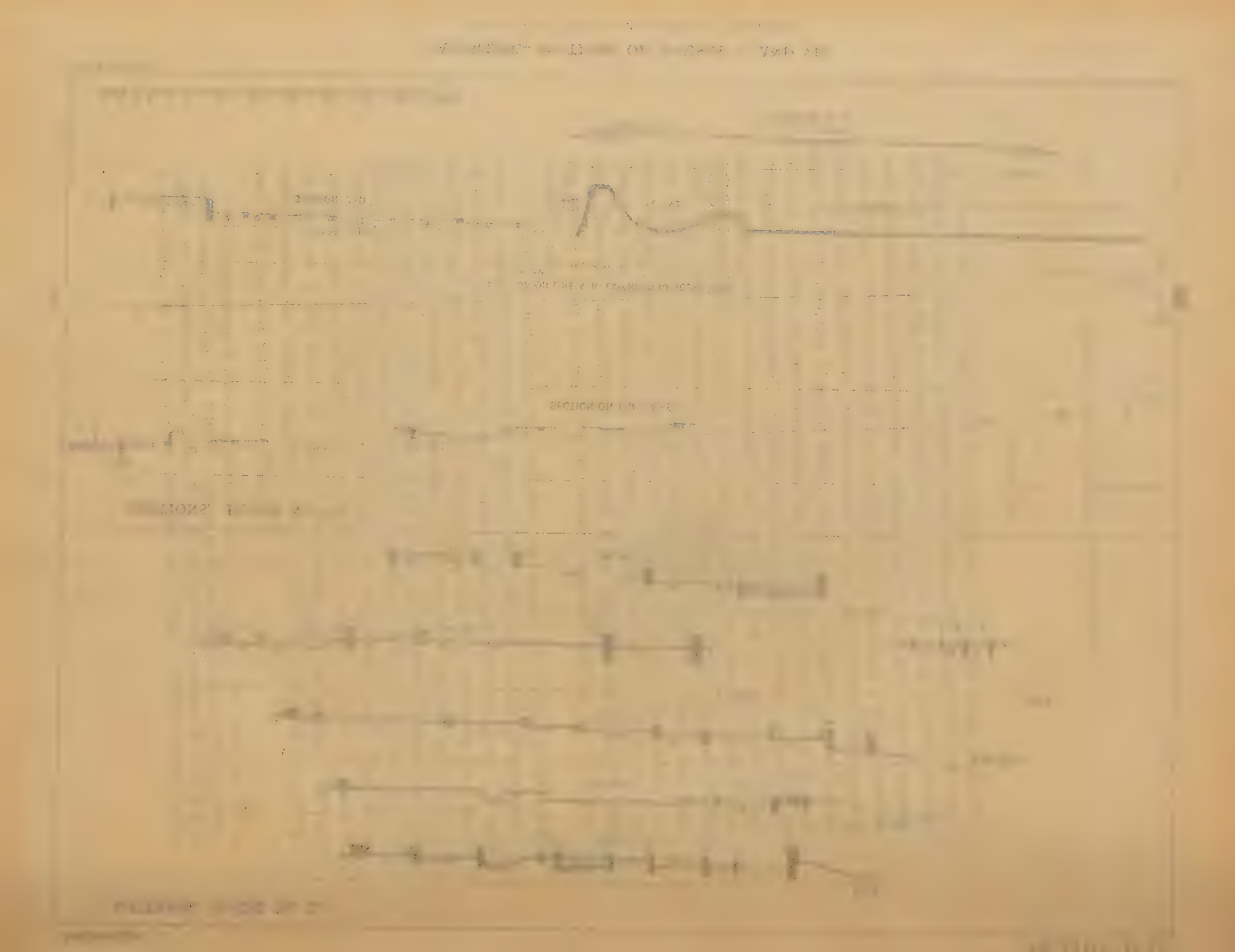
CAERWENT.—SECTIONS OF HOUSES II. AND VII.

Published by the Society of Antiquaries of London. 1902.



The large yard to the south of the house measures 82 feet by 66 feet at the south end; going towards the north it gradually becomes wider. It has a doorway near its south-east angle[a] giving access to the street which separates House No. 7 from the west prolongation of the north wing of House No. 2. The road has been traced at various points, and remains of it at both levels have been found.[b] It varies in width from 18 to 20 feet.

At the south-west angle of the yard a curious arrangement of large stones was found; a slab with a water-channel cut in it to a depth of about 1 inch, with a step down to it and one or two loose flags round it, and with a smaller slab on end on its north side. We expected to find a well to the east, but only discovered a rubbish pit, the bottom of which was reached at a depth of 4 feet 8 inches below the slab.

The yard was floored with clay and pebbles mixed, the latter being smaller and smoother than the round stones of the natural bottom. To the north is a large space (No. 2), which was probably open to the sky. It has a good concrete floor, 6 inches above which another similar floor has been laid in connection with the reconstruction of the house, and on its south side is a small building (No. 3) approached on the north by a step 9 inches in height from the concrete floor, formed by two large blocks of sandstone, on each side of which is a wing wall to support a porch. The interior measures 17 feet 6 inches by 11 feet 6 inches. Its walls are of exceptional thickness, 2 feet $10\frac{1}{2}$ inches to 3 feet 4 inches, the average thickness at Caerwent being 2 feet, and very carefully constructed. They are not bonded into any of the walls around them, and the latter are much thinner

10 feet square; No. 11, 8 feet 3 inches by 17 feet 6 inches; No. 12, 5 feet 3 inches by 17 feet 6 inches; No. 13, 14 feet 3 inches by 17 feet 6 inches; No. 14, 15 feet by 18 feet; No. 15, 17 feet by 16 feet 3 inches; No. 16, 13 feet by 16 feet; No. 17, 12 feet by 8 feet 9 inches; No. 18, 12 feet by 20 feet; No. 19, 12 feet by 11 feet; No. 20, 12 feet by 9 feet 6 inches; No. 21, 24 feet 9 inches by 16 feet 9 inches; No. 22, 12 feet by 16 feet 9 inches; No. 23, 27 feet 6 inches by 16 feet 9 inches; No. 24, 10 feet by 17 feet; No. 25, 7 feet by 6 feet 9 inches; No. 26, 6 feet 9 inches by 8 feet: No. 27, 15 feet 9 inches by 16 feet 9 inches; No. 28, 16 feet by 12 feet 3 inches; No. 29, 5 feet 6 inches by 9 feet 6 inches; No. 30, 8 feet 6 inches by 9 feet 4 inches; No. 31, 16 feet by 6 feet 9 inches; No. 32, 16 feet by 5 feet 9 inches; No. 33, 16 feet by 12 feet 3 inches. Courtyard (excluding corridors), 60 feet 9 inches by 36 feet 9 inches. Corridors, 5 feet 9 inches wide (average width).

[a] Here is a loose block of sandstone measuring 4 feet 5 inches by 1 foot 5 inches by 10 inches thick, and just west of it a fragment of the threshold *in situ*, 2 feet 6 inches by 1 foot 6 inches by 8 inches thick, projecting 3 inches south from the face of the wall, which is 1 foot 6 inches in width.

[b] The upper street is about 1 foot 5 inches below the grass, the lower from 3 feet 8 inches to 4 feet 2 inches.

and not so well built. Originally, therefore, the building may have stood by itself, and was perhaps a small temple or shrine, though nothing was found that gave a clue to its purpose. The floor was of gravel concrete; fragments of it 9 inches in thickness were found, but hardly any *in situ*. Below the floor level we found gravel and burnt material, including bones of deer and other animals, to a depth of about 2 feet below the threshold level.

To the east of No. 3 are two spaces (Nos. 4, 5) enclosed by irregular walls, the use of which is uncertain. No. 4 has a gravel floor 1 foot 4 inches below the modern ground level.

Further north again we enter upon the principal rooms of the house. At the west end of the line are two large rooms (Nos. 6, 7) measuring respectively 20 feet square and 26 feet by 17 feet. An opening 17 feet wide which was probably closed only by curtains, leads from one to the other.

The only entrance to them from the rest of the house is by the corridor (8), which enters Room 6 on the east side. Both are paved with mosaics of intricate pattern, but bad execution. That in Room 6 is the better preserved of the two, and is also the more interesting (Plate X.). The central circle has unfortunately disappeared to a great extent, and what was represented in it we cannot tell. The four minor circles surrounding it contain figures of nude winged genii, each holding a torch in his right hand, and each differing slightly in position and in the details of the representation. Those in the south-east and north-east corners are perfect. In each corner of the pavement is a rectangle containing the head and shoulders of a figure representing one of the four Seasons. Winter, in the south-west angle, is the best preserved of the series, and wears a pointed hood which covers the ears. The figure in the south-east angle is entirely lost, but the remaining two are fairly well preserved. Both are female figures with garlands in their hair, but neither has any attribute which gives a clue to its identification.

In the centre of each side is a rectangular panel containing the figure of an animal. On the west we have a lion, on the south possibly a bear or boar, and on the north remains of two animals, the one either a boar or a bear, the other certainly a hare or rabbit. On the east only the head of the animal is preserved, but it seems to be that of a lion. Between each of these panels and the busts of the Seasons in each corner are two guilloche ornaments set in lozenges, while the spaces between the circles are filled in with geometrical designs.

On the north is the entrance into Room 7, and here the edging of sandstone *tesseræ* is replaced by six lines of chequers in black and white which form the transition to the pavement of the next room. This is purely geometrical in

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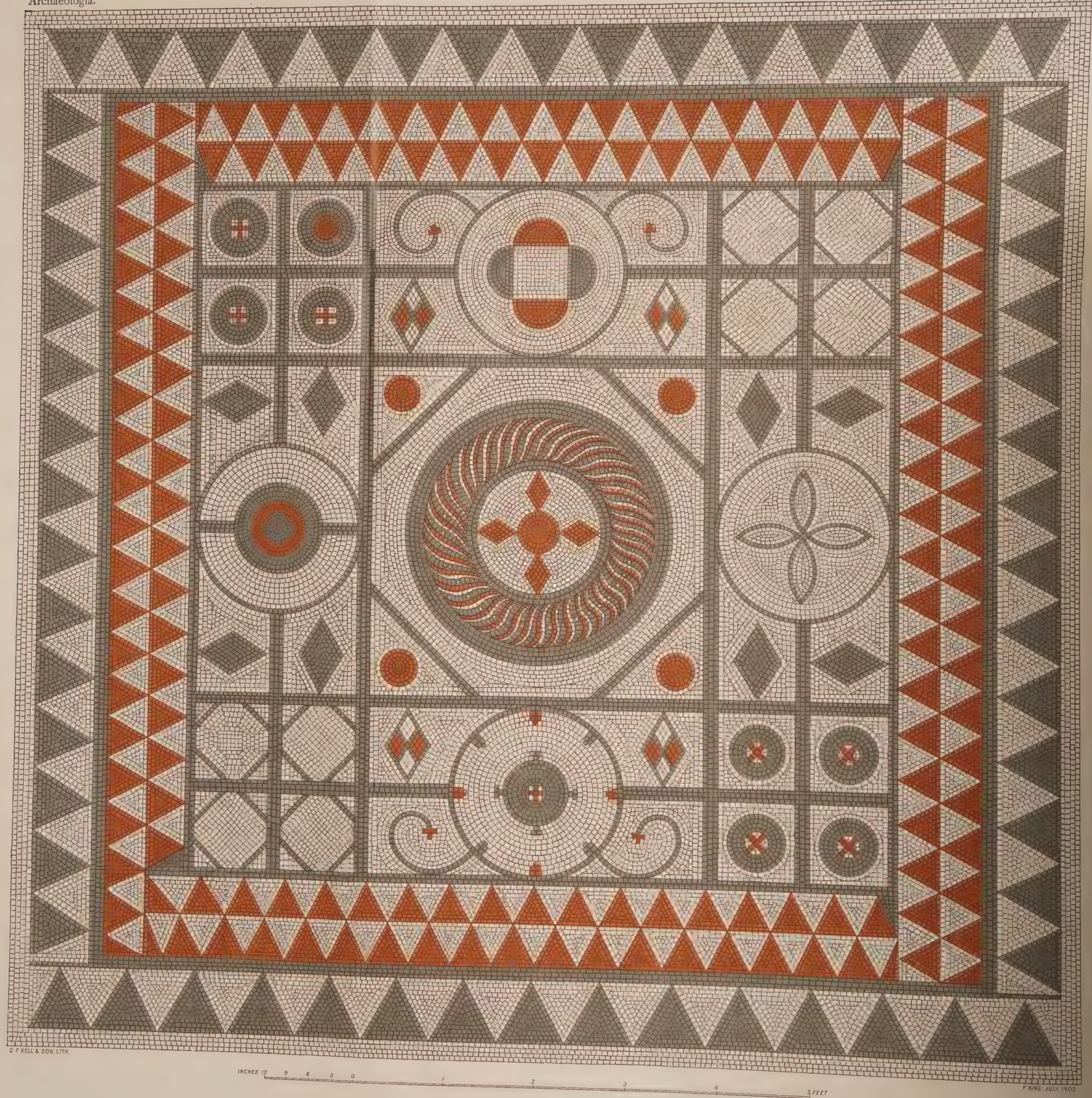
CAERWENT.—MOSAIC PAVEMENT IN HOUSE. No. VII. ROOM 6. ($\frac{1}{12}$ LINEAR).



CAERWENT.—THE LOWER PAVEMENT. ROOM 7. HOUSE VII.

character, consisting very largely of chequers, and executed in black and white only, with a wide border of sandstone *tesseræ*. The centre pattern is 12 feet square, while the border is of irregular width. Considerable remains of an older pavement immediately below this are preserved. It is far better in execution; the margin consists of a line of black and two lines of red triangles on a white ground, while in the centre are circles with various designs within them.[a] (See Plate XI.) The border of sandstone *tesseræ* is wanting and seems to have been entirely removed for use in the upper pavement.

As in all the other Caerwent pavements, the whole of the *tesseræ* seem to have been made from stone found in the immediate neighbourhood. The white are of white lias; the black, or rather blue, are blue lias; the brown, yellow, and purple are of sandstone, derived from different layers of old red and coal measure sandstones, which differ considerably in colour. The red and pink are of brick, numerous *tesseræ* used for the lips, noses, tongues, etc. of the animals and the Seasons being made from Samian ware. A few *tesseræ*, rich in colour, red, green, deep yellow, etc. seem to have been made from hard pebbles from the bed of the stream, or possibly from the shore of the Bristol Channel, a few miles to the south of Caerwent. On the whole we may say that the colours of these pavements compare favourably with those found at Silchester and elsewhere in Britain, their special feature being the large quantity of sandstone *tesseræ* of various shades, used with especially good effect in the guilloche knots and borders.

The walls of both these rooms are preserved to a maximum height of 3 feet on the west and rather less on the other sides, and much of the wall plaster is preserved *in situ*. Full size tracings of this have been made. There seems to have been an attempt to represent architecture in perspective, in far away imitation of the later Pompeian styles of decoration; but the colouring is crude in the extreme and the intention of the artist by no means clear (Plate XII. fig. 2). Many fragments of the plaster from the upper part of the walls were also collected, especially in Room 7, where a piece about 6 inches by 1 foot was found lying on the pavement. It represents green foliage on a purple ground. The scheme of colour and design of the upper part of the walls has not yet been made out, but careful study may be able to produce further results.

We may now turn to consider what knowledge can be gained of the first

[a] This pavement, though parts of it had sunk, was almost perfect, so that the design could be recovered with certainty, and is therefore shown as complete on Plate XI. though some small portions were missing. All the three pavements have been removed to the Newport (Monmouth) Corporation Museum.

layer have also been found on the east walls of the room. It is to be noted that the dado has been carried about 6 inches below the level of the earlier pavement, no doubt as a precaution, the walls having been painted before the floor was laid.

In the later state of the house the only means of access to these two rooms was, as we have seen, by the corridor (No. 8), which entered Room 6 on the east side.[a] On the north of this corridor is a range of rooms which were probably lighted from the central courtyard, whereas Rooms 6 and 7 must have been lighted from the south and west or by means of a clerestory.

These rooms (11 to 16) were all entered from the corridor, either directly or indirectly, Room 12 serving as a passage to Rooms 11 and 13. Room 11 has two concrete floors, the one 7 inches above the other; at the south end of the room is a narrow wall parallel to the south wall, which was suppressed when the upper floor was laid. Between the two floors is much black burnt material. This may indicate that the first house was burnt down, or merely that at one time there was a hypocaust or fire here. Room 12 has a gravel floor flush with the thresholds of the doorways which lead into it. Room 13 has a concrete floor; the dado is white splashed with strawberry colour, and there are traces of another coat of plaster under it. Rooms 14 and 16 are hypocausts, the stokehole and wood-yard (Room 15) lies between them.

The north half of the floor under the hypocaust in Room 14 has subsided, and here the *pilæ* are fairly well preserved. They are formed of slabs of sandstone, which are occasionally replaced by tiles. They are irregular in size and arrangement, but average 10 inches square. The south half of the floor has to a greater extent retained its original level, and here the *pilæ* are gone completely, and their positions cannot be traced. Of the upper floor nothing is preserved. Beneath the lower floor are stones loosely packed so as to keep the floor dry. This hypocaust did not form part of the first house, for under the floor was found wall plaster which must have belonged to an earlier period. The pieces were of various colours, while the room above the hypocaust was decorated in red and white.

The sill of the flue between Rooms 14 and 15 is a slab of sandstone, the sides being of tiles; on the east side of the opening and south of it a narrow slab of sandstone 3 feet 3 inches long was found, serving as the beginning of the flue.

The Hypocaust No. 16, had *pilæ* of tiles 10 inches square, ten rows from north to south, and seven from east to west. The places where they were

[a] A small model in bronze of a four-legged stool, decorated with enamel, (a child's toy ?) was discovered here.

originally laid can still be seen; in later times there was a rearrangement made, the *pilæ* being put closer to the walls of the room, but the original number being retained. The flue opening is similar to that described above.

This range of rooms was certainly common to the two periods of the existence of the house. There must have been steps or a slope up to the east in the corridor, as the level on which the *pilæ* are laid in Room 16 is 6 feet higher than that of the mosaic pavement of Room 6, and 1 foot 6 inches higher than that of the gravel floor of Room 13. Very possibly the steps were situated where the prolongation of the east wall of Room 13 crosses the corridor.[a]

The central courtyard is roughly rectangular. It had a gravel floor, which lies at a mean depth of 3 feet 3 inches below the present grass level. It was surrounded by corridors. The south corridor was, in the earlier house, 2 feet 8 inches wider than in the later. The earlier north wall still exists, parallel to the later north wall, and 2 feet below the level of the doorway into the courtyard which lies opposite Room 13. To the west of this doorway a drain 6 inches deep and 7 inches wide crosses the corridor. It has a cemented bottom and is covered with slabs of stone. Its purpose is not clear, for after passing through the north wall of Room 12 by an aperture 8 inches by 7 inches, at a level 2 feet above the floor of the room, it suddenly stops. Further, after passing through the later north wall it is blocked by the earlier one, which seems to effectually prevent its discharging into a pit which lies on the further side. This pit contained black earth and bones; it had a large slab of sandstone as a cover, and on each side of it are short walls as if there had been a porch and a doorway here at one time.

The west corridor did not exist in the earlier house, and no traces of foundations which could have belonged to it were discovered in excavating this side of the courtyard. The space immediately to the east of Room 17 was, in the earlier house, part of the same room, but in the later house was thrown into the corridor, its east wall (in which was the doorway) and north wall being broken down to below the later floor level, which was 2 feet 8 inches below grass level. Room 17, on the other hand, became the east half of a new room, which ex-

[a] The rooms at the eastern end of this range (Rooms 13, 14, 15, and 16) must have been accessible directly (or indirectly in the case of Room 16) from the south corridor of the courtyard (see the sections). If this were not the case one would be compelled to resolve the house in its later state into two: a corridor house to the south with a yard attached (Rooms 1-16), and a courtyard house with rooms on three sides of it to the north (Rooms 17-33).

tended as far as the new west wall of the house.[a] That the east wall of Room 71 is a later addition is shown by the fact that the coloured plaster of the earlier room, which is white with a broad red band, passes behind both ends of it.

The other rooms on the west side of the west corridor call for no special remark. The west wall of the courtyard of the earlier house is easily traceable under them. In the later house they had doors direct into the corridor, but of those of Rooms 17 and 18 no definite traces could be found, and they had apparently no intercommunication with one another. They had cement floors, though of that in Room 18 no traces remained *in situ*.

Turning to the north wing we have, as already noticed, the north-west angle of the older house in Room 21. The old north wall can be traced right along the rooms of this wing, and the wall now dividing Rooms 22 and 23 is built across the middle of what was probably the main entrance to the original house from the high road, which is formed by two walls projecting beyond the line of the front of the house, so that there was probably a porch here. This entrance is crossed by two short walls, which were probably merely sleeper walls, as yellow plaster is preserved *in situ* on each side of its doorway, and neither of these walls is preserved above its level. Beyond this point the old north wall can be traced as far as Room 27, where it turns to run south.

To the same period as this wall belongs probably an open drain which runs just in front of the main entrance parallel to the façade of the house. In front of the entrance we see traces of its reconstruction. The east portion here runs right under the west portion. It appeared at first sight as though both fell into a pit at this point, but the removal of a few stones from the west drain showed that it was of later date, as the east drain[b] was seen to continue under it, being completely blocked up when it was constructed.

The floor of the west drain is also on a level with the bottom of the painted plaster to be seen on the west side of the west of the two wing walls of the earlier entrance to the house, a fact which seems to make out the drain as later.

The line of the east section is continued to the east of House No. 7 along the front of House No. 8, which is set slightly further back from the main road than House No. 7. Here, however, instead of being paved with stone slabs and being apparently open, it is not paved, but is roofed with slabs

[a] In the south-west angle of Room 17 was found a fragment 1 foot 0½ inch high (broken) of a capital of yellow sandstone; shaft 7¾ inches in diameter, abacus 1 foot 0½ inch square.

[b] The east section is about 10 inches wide and 6 inches in depth, the west 1 foot wide and 8 inches in depth.

carefully keyed into the wall of the house on the south, and with stones above as well as below them on the north.[a]

When House No. 7 was reconstructed and the north wall pushed further north, the drain of which we have been speaking was blocked up by the new foundations in several places, the wall being built on its north side. In front of the new façade we find a strip about 4 feet wide, which seems to have been a gravelled footpath;[b] then comes an open drain, 2 feet in width and depth, and then the high road, which runs just inside the wall separating the excavations from the modern road.[c] It is, however, difficult to understand why this drain should end abruptly opposite Room 23,[d] and not reappear till a point some 125 feet further east in front of Room 16 of House No. 6, there being no traces of its ever having existed in the intervening space. Nor is it easy to see why its sides are in places actually above the level of the Roman high road. They are always at least flush with it (see sections, Plate IX.).

In the rooms of the north wing, floors belonging to both the earlier and the later periods are to be seen. There was apparently a floor of gravel, or of large stones in Room 24, on a level with the open drain which ran in front of the earlier house, belonging to a footpath or edging between drain and house wall. The upper floors are mostly of gravel concrete, though in Room 23 there is rough pitching which overlies the earlier north wall of the house, and continues into the corridor.[e] Towards the east end there are traces of constructions of an intermediate period; the cross walls parallel to the east walls of Rooms 24, 25, 26, block up and are therefore posterior to the open drain, though they are anterior to the latest form of the house. There are gravel floors corresponding in level with these walls. There are, however, no traces elsewhere of this intermediate

[a] In this drain at the north-east angle of House No. 7 some lumps of clinker and wood mixed were found, also some green glazed pottery at a depth of 4 feet. The pottery, from the depth at which it was found, is very likely Roman, and some similar specimens have been found at Silchester. In front of House No. 8 the drain was half full of water-washed dark sandy stuff.

[b] Near the north-east angle of House No. 7 it is 4 feet 4 inches wide, 6 inches above road level, and mortared. Here there is no drain.

[c] The ancient road is paved with gravel, and its bed is composed of a hard mass of sand and pebbles for a depth of 2 feet 9 inches to 3 feet 3 inches, after which comes loose sandy stuff with bits of stone for 1 foot 10 inches, and then the hard deep red clay bottom. In another place the thickness of the road bed is only 2 feet, while the sandy stuff with bits of stone is 2 feet 3 inches thick.

[d] It is possible that at this point there was an entrance into the house from the street; no traces of one have, however, been found either here or elsewhere in the north façade.

[e] In Room 22 there are no floors traceable. Here was found part of a small column 7 inches in diameter.

period, and it is probable that only the north-eastern corner of the house was affected by the changes that then took place. It will be noted that the earlier wall parallel to the east wall of Rooms 25 and 26 carries on the line of the east wall of the east corridor.

In the north-east angle of Room 27 a fragment of walling is seen projecting 1 foot 6 inches into the room which carries on the line of the front of House No. 8.[a]

All through the east wing traces of earlier foundations are to be seen. (See below.) The only one of the dividing walls in the rooms themselves which seems to belong to the later house is that separates Room 29 from Room 30. The floors in this wing are entirely gone.

House No. 8.

To the east of House No. 7 is a building which, like it, faces the main road traversing the city from east to west, but is set about three feet further back from it. This we have called House No. 8;[b] but its purpose and arrangements are by no means certain, as it has been almost everywhere destroyed to below the floor level.[c]

Two parallel walls are frequently found running close together in this block, and seem to indicate that the whole might be divided into four separate buildings: (A) Rooms 1 to 4 (with which were once combined the earlier foundations, that were in later times buried under the east wing of House No. 7); (B) Rooms 5 to 11; (C) Rooms 12 to 19; (D) the shrine. It is further to be noted that in the west portion of the north wall of the house, which is at any rate earlier than the later form of House No. 7, there are two blocks of sandstone with dowel holes in them, which must have been removed from some other building. The state

[a] Two gravel floors were found in Room 27, one 2 feet 8 inches to 3 feet 9 inches below grass level (having subsided in places) the other 7 inches deeper, both below the level of the lip of the drain.

[b] The measurements of the rooms in House No. 8 are as follows: No. 1, 19 feet 6 inches by 28 feet; No. 2, 18 feet 6 inches by 13 feet; No. 3, 5 feet by 8 feet 6 inches; No. 4, 12 feet 9 inches by 13 feet 6 inches; No. 5, 18 feet by 28 feet; No. 6, 18 feet by 16 feet 6 inches; No. 7, 6 feet by 58 feet; No. 8, 18 feet by 8 feet 6 inches; No. 9, 17 feet 6 inches by 9 feet; No. 10, 9 feet by 13 feet 6 inches; No. 11, 5 feet by 9 feet; No. 12, 8 feet by 12 feet; No. 13, 2 feet 6 inches by 12 feet; No. 14, 13 feet by 10 feet; No. 15, 13 feet by 2 feet 6 inches; No. 16, 13 feet 6 inches by 57 feet; No. 17, 13 feet by 7 feet; No. 18, 15 feet by 29 feet.

[c] The only exceptions are Room 2, which has a roughly pitched floor, while Room 11 has traces of flagging, and Rooms 11, 16, and 20 of rough gravel flooring.

of ruin to which the building has been reduced may be explained by the following passage from Seyer's account of Caerwent :[a]

> There are no traces of the western gateway ;[b] on the left as you enter the town a house is now (1786) building from the spoils of the walls, and on the right a lime-kiln is kept at work, so that this part is likely soon to be obliterated ; for the lime-burner told me that the whole walls were built of limestone.

A great deal of lime-burners' rubbish was, as a matter of fact, found along the east side of the house; and it was noticed in several places that the sandstone had been left in walls from which the limestone had been removed. It is further to be noted that the grass level is from two to three feet below that of the field adjoining it on the east.

House No. 8 had not any structural connexion with House No. 7, there being a narrow alley between them, crossed by three underground tie walls. The northernmost of these continues the line of the front of House No. 8 a little way into Room 27 of House No. 7, and forms the south side of the drain which was suppressed when the later form of that house came into existence. This drain continues to run along the front of House No. 8; the west portion of it is roofed over with flat stones, which are keyed into the walls on each side of the drain. At one point, in Room 17, it has been built over by a later wall which projects beyond the front line of the house, but it continues to the east of this point as far as Room 20, beyond which no traces of it can be found.

Just to the north of Room 16 another drain runs parallel to it, between it and the high road, but only for a length of 12 feet 6 inches, after which it ends abruptly. It seems to be the continuation of the drain found in front of Room 23 of House No. 7, but its meaning is not at all clear.

In Room 5 was found a large slab of sandstone 3 feet $\frac{1}{2}$ inch by 5 feet 2 inches by 2 inches thick, the purpose of which is uncertain.

Room 7 (apparently a corridor) contains a small hearth with a curved end, which must be a later addition.

In Room 20 an interesting discovery was made. Three rough gravel steps ascend from the gravel floor of the room (see Section X Y, Plate VIII.) to a platform floored with clay $4\frac{1}{2}$ inches thick (fig. 6), on which was found, though certainly not in its original position, a head carved in sandstone, measuring 9 inches in height by $4\frac{3}{4}$ inches across the head, and $3\frac{3}{4}$ inches across the neck, but considerably weathered (fig. 7). The eyeballs are in relief and surrounded

[a] *Journal of the British Archæological Association*, iv. (1848) 250.

[b] This is incorrect, as will be seen from our plan.

by an oval depression, the nose is very straight, the mouth small, the ears deeply indented, the hair is entirely worn away. The head is very flat at the back, and was not intended apparently to be seen except from the front. It is also flat at

Fig. 6. Remains of supposed shrine in House No. 8.

the bottom, and does not seem to have formed part of a statue, as no traces of its attachment to the neck can be seen. If, as seems probable, this is the head of some deity, the gravel steps and clay floor may be the foundation of the shrine, the superstructure of stone having been removed by the lime-burners. This con-

jecture is confirmed by the fact that the wall running south from the south-west angle of Room 20 is partly built of sandstone blocks,[a] in which are cut holes 2 inches deep of different sizes and at irregular intervals, as if intended to support a wooden railing. To the south-east of this shrine is another small open hearth.

Fig. 7. Sandstone head found on site of supposed shrine in House No. 8.

To the south of the house is a large yard, into which Rooms 9—14 project, so that they may be a later addition. In its south wall a money jar of grey ware was found, hidden under a stone, but empty ; it has a small slit in the top, and its maximum diameter is 5 inches. The only similar money jar of Roman date known to us is one in the British Museum, found at Lincoln, but the type is still in use, specimens in red earthenware being not uncommon.[b] To the east of these rooms a pit was found, 14 feet 6 inches in depth, and 5 feet wide at the top, but beginning to taper at 9 feet 4 inches below ground level, so that at the bottom it was only 2 feet 10 inches in width. It contained some sandstone roof tiles, a fragment of a quern of stone, and a good deal of pottery. The sides and bottom of it were puddled with grey clay. Near it was found a piece of a roughly-moulded cornice, 3 feet long by 2 feet 8 inches wide by 9 inches thick, belonging perhaps to one of the piers of the west gate.

House No. 8 is bounded on the east by a long wall which stops and turns east at right angles at the south-east angle of the yard, the line of the eastward wall not corresponding quite exactly with the south wall of the yard. The east boundary of the part of the field now under excavation coincides with this wall up to the point where it stops, but after that runs somewhat irregularly.

[a] In front of these blocks is a rounded block of sandstone, flat at the top and at the bottom, 1 foot in diameter, and 1 foot 3 inches in height. It had apparently been placed there for some purpose which we cannot now ascertain; perhaps for offerings at the shrine.

[b] One dating from the seventeenth century was dug up in Bristol last year, and is figured in the *Transactions of the Bristol and Gloucestershire Archæological Society*, xxiv. 279. There was also found here a portion of an alabastron of Egyptian (?) alabaster, the body of which when complete measured 6 inches in height and $2\frac{1}{2}$ inches in diameter inside, the thickness of the sides being $\frac{3}{4}$ inch.

Inasmuch as the wall contains no doorways (so far as we have been able to discover) and has no cross walls running west from it, it seems clear that it is the boundary wall of the next block to the east.

Block A.

At some distance to the south of the irregular wall which bounds the yard of House No. 8, and just to the east of the large yard which lies to the south of House No. 7, there is a small building which we have called Block A.[a] The rooms are small, and the walls chiefly of sandstone, the limestone having been removed by lime-burners. No traces of floors or doors are anywhere visible.

Upon the east wall of Room 1 there is an open hearth, in which some furnace refuse was found, while near it some fragments of iron ore were discovered. Another hearth was found some 25 feet to the south of Room 1, and a third to the south-east of the block.

To the east of Block A a wall runs northwards to join the south wall of the yard of House No. 8. Just to the east of the point where it does so a very large pit was found. The dimensions may be seen from the section given on Plate VIII.

The pit has been excavated through the hard red clay, below which comes the sandstone rock; after 1 foot of this comes a layer of white clay 3 inches thick, and then the rock again.

In the pit was discovered a sandstone trough measuring 2 feet $2\frac{1}{2}$ inches by 1 foot $3\frac{1}{2}$ inches outside, and 1 foot 6 inches by $6\frac{3}{4}$ inches inside, broken in two pieces; also several large paving slabs 2 inches in thickness, under which was found a good deal of pottery. Four Samian bowls, two with figures, two plain, and three black jars can be reconstructed entirely, and there are many other fragments. Part of a Samian bowl with perpendicular sides bears the incuse stamp outside IANVARISO (*Januaris officina*) reversed, while the most perfect Samian bowl bears the following inscription in cursive characters in relief on the outside underneath:

AGVNIS F(ECI)T

At the bottom of the pit some pieces of oak timber were found. There were also discovered two human skulls at a depth of about 12 and 15 feet respectively, while a whole human skeleton was found under the wall at the north-west angle of the pit. The skeleton had possibly been placed under the wall "for luck," as is still the custom with some savage tribes. The body lay east and west, the head being in the recess left in the wall, to the west. As the Romans are not known

[a] The measurements of the rooms of Block A are as follows: Room 1, 15 feet 6 inches by 17 feet; Room 2, 4 feet wide; Room 3, 9 feet by 9 feet 6 inches; Room 4, 7 feet 6 inches by 9 feet; Room 5, 9 feet long.

to have buried victims under the walls of buildings, if this was the purpose of the burial it may be taken as an instance of Celtic influence at Caerwent.

The pit probably served as a water reservoir, though its great depth compared with its width is noteworthy. It would have been quite watertight.

To the east and south of this pit is another large open space enclosed by rough walls, in a very fragmentary condition, in which no discoveries of any importance were made. Much lime-burners' refuse was found here.

Fig. 8. Plan of Caerwent, showing discoveries down to November, 1901.

V.—*Some familiar Letters of Charles II. and James Duke of York addressed to their daughter and niece, the Countess of Litchfield; transcribed and edited by* Harold Arthur, Viscount Dillon, *Hon. M.A. Oxon, President.*

Read 6th February, 1902.

The letters contained in the volume before us now preserved at Ditchley consist of five written by Charles II. and forty written by James II. while Duke of York. They are addressed to Charlotte Fitzroy, Countess of Litchfield, their daughter and niece. Sir Edward Henry Lee, the fifth baronet of that name, was by patent dated 5th June, 1674, created Earl of Litchfield, Viscount Quarrendon, and Baron Spelsbury. On 11th August, 1674, he was betrothed to Charlotte Fitzroy, daughter of Charles II. by Barbara Villiers, Countess of Castlemaine, and on 3rd August, 1670, created Duchess of Cleveland. The bride and bridegroom were very young, he having been born 4th February, 1663, and she 5th September, 1664. A little later, on 22nd February, 1677, the actual marriage took place, and, as recorded on their monument in Spelsbury Church, "at their marriage they were the most graceful bridegroom and most beautiful bride, and that till death they remained the most constant husband and wife."[a] Their married life lasted forty-two years, during which time she bore him eighteen children, the youngest of whom, Robert, eventually succeeded as fourth and last Earl of Litchfield.

The letters cannot claim to be of historical value, for no new details of public interest are disclosed in their perusal, but they are in a way interesting as showing the affectionate tone of Charles's correspondence, evidences of which we have already seen in his correspondence with his sister "Madame," published in Mrs. Cartwright's interesting life of that unfortunate princess. In contrast with this domestic style of the king's letters stands out the very polite and to some degree kindly tone of his brother's letters. Without any formal commencement they all end with "your obedient humble servant, J.," a curious way for a royal uncle to sign himself in writing to his niece.

[a] The Earl of Litchfield was made Lord Lieutenant of Woodstock Park and High Steward of Woodstock 1680, and Gentleman of the Bed-chamber to Charles II. 2nd April, 1683.

Charles's letters show also a kindly and considerate tone for another daughter, the Countess of Sussex, and "Your loving Father" is as affectionate a signature as any one could desire.

Many of James's letters are dated from Edinburgh, where he was occupying the post of Lord High Commissioner, and his somewhat plaintive remarks about the perjury and slander from which he and his co-religionists suffered in England are rather interesting.

But his letters touch on many subjects besides politics and religious troubles. His account of the wreck of the *Gloucester* is rather cold-blooded, though perhaps not out of keeping with the feelings of the "quality" for the less fashionable people in those days. The very frequent references to outdoor sports, stag-hunting, fox-hunting, and "Goffe," written evidently as it was pronounced, show that the somewhat gloomy James did know how to enjoy himself at times. As to indoor amusements, amateur theatricals, in which his daughter, the future Anna, took part, and the frequent mention of basset and crimp, serve to inform us how the better or richer classes amused themselves. The memoirs of de Grammont are apt to give the idea that in the court of Charles and also in that of his brother much less innocent pleasures occupied most of the time of the ladies and gentlemen of that day. Perhaps the extreme respectability of the Duke's niece influenced his correspondence with her, but from whatever cause it might be, there is little scandal ever alluded to, except the irregular proceedings of Lady Henrietta Berkeley.

The troubles connected with the City of London Charter and the election of the Sheriffs are referred to and are treated less summarily than the trial and execution of Colonel Russell. There is but one duel mentioned, though we know that they were pretty frequent in Charles's reign, but at all events that one ended fatally.

For notes and illustrations of letters of the time of Charles II. one would naturally look to Pepys, Evelyn, de Grammont, and St. Evremond. Unfortunately Pepys, the most congenial source for such help, is of no use, his diary only covering the years 1660—1669, while these letters extend only from February, 1681, to October, 1684. Evelyn is less intimate in his information, and de Grammont is so regardless of chronological sequence and so much concerned with the scandals of the reign as to be of little assistance when used for illustration of the respectable and domestic Countess of Litchfield.

Fortunately, in Sir Narcissus Luttrell's diary, extending from 1678—1714, I have been able to find notices of the movements of the court which have enabled me to date all but one of the forty-five letters. In the letters the month and day

of the month are given, but very rarely the year, and without such assistance as Luttrell affords it would be impossible to assign some of the letters to their proper years.[a]

Card play is mentioned frequently in the letters, but only two games are mentioned by name, Crimp and Basset.

Crimp appears to have been played in England long before the date of these letters, but of the rules of the game, its original nationality, and in fact of anything but slight mention in plays, essays, etc. I have failed to find any information.

Ben Jonson, in the *Magnetic Lady*, 1632, ii. 1, says: "Let her bear up to-day, laugh and keep good company at Gleek or Crimp.

In 1710, Addison, in the *Tatler*, No. 250, says: "As for the women of virtue, it will not be difficult for me to find them about midnight at crimp and basest."

In 1720, Gay, in *The Funeral, a Town Eclogue*, says: "At crimp Myrtillo played."

Basset, on the other hand, must have been but recently introduced into England. In Haydn's *Dictionary of Dates* it is called Basset or Bassette or Pour et contre, and is stated to have been invented by a noble Venetian in the fifteenth century, and introduced into France in 1674. Strutt, following Johnson's Dictionary, gives the same origin for the game, but Hoyle, in his first edition, makes no mention of it.

In the *Compleat Gamester*, printed for Charles Brome at the "Gun," the west end of St. Paul's Church, 1709, is, "The Game at Basset never before printed in English." In chapter xxxviii. of the above is "Basset, a French game." It is there described: "This Game amongst all those on the Cards, is accounted to be the most Courtly, being properly, by the understanders of it, thought only fit for Kings and Queens, great Princes, Noblemen, &c. to Play at by reason of such great Losses, or Advantages as may possibly be on one side or other, during the time of play.

"It is in its Nature not much unlike our late Royal-Oak-Lottery; And as that by the Lottery-man's having five Figures in two and thirty for himself, must certainly be a considerable Profit to him, in length of Time, so here the Dealer that keeps the Bank having the first and last Card at his own dispose, and other considerable Priviledges in the dealing the Cards, has (without doubt) a greater Prospect of Gaining, than those that Play: this was a Truth so acknowledged in France that the King made a Public Edict that the Priviledge of a Talliere, or one that keeps the Bank at Basset, should only be allow'd to

[a] The references to Macky relate to *Memoirs of the secret services of John Macky Esq., &c.*, including *Characters of the Court of Great Britain* drawn up by him by the direction of the Princess Sophia, and published by his son Spring Macky, London, 1733.

Principal Cadets, or Sons of great Families, supposing that whoever was so befriended as to be admitted to keep the Bank, must naturally in a very short time become possessed of a considerable Estate. But all others for fear of ruining private Persons and Families, are confined Politicly to a Twelve-peny Bank, tho' here they have the liberty of staking what they please."

The book then goes on to give the names of the parties to the game, such as Talliere, that is the one who holds the bank. The Croupiere who helps him by noting the cards on which money has been staked, and "The Punters," a term for every one of the gamesters at this play. The different terms of the game are then given, as The Fasse, The Coŭch, The Paroli, The Masse, The Pay, Alpiew, Sept et le va, Quinze et le va, Trent et le va, Soissant et le va, etc. These four last terms are applied to the multiplication of the stakes, and were supposed to be the "Chance that shows the advantage of this Game." They were the real gambling portion of the game, for if a punter or player could last on to the Soissant et le va, he received on the favourable card turning up sixty-seven times his stake. The bank may thus be broken, but, as the book says, "this very rarely happens." Basset appears to have been a very popular game, and some rather than not play at all will punt at a twopenny bank.

We may suppose that there was something in the extreme gentility of the game of basset, for Pepys in his Diary, though referring to cribbage, which he could not play, and to gleek and ombre, does not once mention it.

A propos of the Duchess of York playing the game, a note of Evelyn's, under date 13th July, 1686, says that "standing by the Queene at Bassett I observed that she was exceedingly concerned for the loss of £80, her outward affability much changed to stateliness, since she has been exalted."

Again, in describing the behaviour of the Princess Anne on her arrival, 21st February, at the new court, soon after her father's flight, "within a night or two sate down to play at Basset as the Queen her predecessor used to do."

Sir George Etheridge, or Ethrege,[a] wrote A Song of Basset commencing

> Let Equipage and Dress despair
> Since Basset is come in.

And ending with

> What pity 'tis, those conquering Eyes
> Which all the World subdue
> Shou'd while the Lover gazing dyes
> Be only an Alpŭe.

[a] He died 1694. His poems were first published 1704.

In 1716 Pope wrote "Thursday, the Basset Table," one of a series of Town Eclogues published anonymously. In this poem several of the terms used in play occur, and its superior attractions are recorded in the verse:

> At the Groom porters, batter'd bullies play
> Some Dukes at Marybone bowl time away.
> But who the bowl or rattling dice compares
> To Bassett's heavenly joys and pleasing cares.

Cockfighting also took up some of James's time and the court indulged in it twice a day, the duchess and her daughter attending what now is considered a cruel and, what is more, an illegal amusement. The sporting works of the day and the *Complete Gamester* will supply all the information necessary to understand what the latter work calls "this pleasing art," as well as a "sport or pastime so full of delight and pleasure that no game in that respect is to be preferred before it." The details given in this work are most curious.

"The gentle, cleanly, and most ingenious game at Billiards," as it is called in the *Complete Gamester*, printed for Charles Brome, at the Gun, the west end of St. Paul's Church, 1709, differed considerably from the game as we now know it. Strutt's *Sports and Pastimes of the English People*, first published in 1801, differs greatly from the *Complete Gamester* in the description of the game, and I cannot but think that the latter is more likely to be correct. Strutt says that the French game much resembled the Italian method of playing known in England by the name of Trucks, but he omits to describe Trucks. The *Complete Gamester* says Billiards had its first origin in Italy, and when he comes to describe Trucks, which he says is an Italian game and much used in Spain and Ireland, he adds, "it is not very unlike billiards but more boisterous, and, in my opinion, less gentile" (? genteel). The table, the names of the parts, and indeed the whole business differs greatly from billiards.

Fig. 1. Signet of King Charles II. (½).

The letters, it will be seen, are written on gilt-edged paper, and in most cases were enclosed in covers or sheets folded to contain them and bear the address. It is curious that while Charles sometimes spells the name correctly, James always writes it "Lichfield."

Fig. 2. Signet of James Duke of York (½).

The seals used by Charles and James were, we suppose, private ones. That of the king is a small oblong one with the corners cut off, with the initials C. R. intertwined and surmounted by the

crown, which is supported by two cherubs (Fig. 1). The seal used by James is oval in form, with the cypher D L between two palm branches, and ensigned with a royal coronet (Fig. 2).

PRESUMED DATES ARE IN BRACKETS.

[1681]	9th	Feb.	James	from
[1681]	29th	Mar.	„	„ Edinburgh
„	6th	June	„	„ [„]
„	18th	July	„	„ Edinburgh
„	20th	Aug.	„	„ „
„	18th	Oct.	„	„ „
„	26th	Nov.	„	„ „
„		Dec.	„	„ „
1682	11th	Jan.		[„]
„	31st	Jan.		Edinburgh
„	19th	Feb.		„
„	22nd	Mar.		Newmarket
„	30th	Apr.		Windsor
„	9th	May		Edinburgh
„	21st	June		Windsor
„	2nd	July		St James's
„	9th	July		Windsor
„	2nd	Aug.		St. James's
[1682]	18th	Aug.	James	from Windsor
[„]	28th	„	„	„ London
[„]	15th	Sep.	„	„ London
[„]	29th	„	„	„ London
[„]	2nd	Oct.	Charles	„ Whitehall
[1682]	22nd	Oct.	Charles	from Whitehall
[1683]	14th	Mar.	James	„ Newmarket
[„]	21st	„	„	„ Newmarket
1683	19th	July	„	„ London
[„]	28th	„	„	„ London
[„]	9th	Aug.	„	„ Windsor
[„]	15th	„	„	„ Windsor
[„]	25th	„	„	„ Windsor
[„]	3rd	Sep.	„	„ Winchester
[„]	13th	„	„	„ Winchester
[„]	21st	„	„	„ Winchester
[1683]	29th	Sep.	James	„ London
[„]	19th	Oct.	„	„ London
[„]	4th	Dec.	„	„ London
[1684]	16th	Mar.	„	„ Newmarket
[„]	3rd	Apr.	Charles	„ [Whitehall]
[„]	5th	Aug.	James	„ Windsor
[„]	28th	„	„	„ Winchester
[„]	5th	Sep.	Charles	„ Winchester
1684.	8th	Oct.	James	„ Newmarket
[1684]	28th	„	„	„ St. James's
N.D.	11th	Aug.	Charles	„ Windsor

[1681] Feb: 9.

I have receved your letter and shall as you desire me, write to M^r^ Hyde about your affaire, being I assure you very desirous to serve you, and am very sorry that my former endeavors to do it, have signyfied so little, I hope this will have a better effect, and that the businesse will be dispatched to your satisfaction and in this as well as in all other things you may depend upon my furthering any of your concerns, being more than any body your humble servant.—J.

When you write to me do it without ceremony, and remember me very kyndly to your Lord.—J.

For my Neece the Countesse of Litchfeild.—J.

The Countess of Litchfield was now 16½ years of age, and had been married four years. She had had two children.

[1681]
Edinburgh March 29.

I have received yours of the 15 in the which you give me an account of your affaire, and tho I am sorry it could not be done as you desired yett I am glad to see you are satisfy'd with Mr Hyde and that you have a promise to have some thing done, I am sure he will still do his part knowing how concerned I am for you and if at any tyme it be proper or necessary for me to mention any of your concerns to him or to any body els lett me know it, that I may do you what service I can, if this place afforded any newse I should tell it you but it dos not tis from Oxford from whence any considerable newse is to be expected, when you write againe to me do it without ceremony and be assured you shall always find me to be your most humble servant.—J.

For my niece the Countesse of Lichfield.—J.

The Duke of York was, as the letter shows, at Edinburgh, where he held the important post of High Lord Commissioner, and the reference to Oxford was from the Parliament being about to assemble there on the 21st March. The king went thither on the 12th by Windsor, arriving on the 14th. He was lodged at Christchurch College, the Queen at Merton College. The Duchess of Portsmouth and Nell Gwyn also went with the crowd of courtiers. The Lords sat in the Divinity School, the Commons in the Convocation House. On the 28th the Parliament was dissolved, the king returning by Windsor to Whitehall, where he arrived on the 30th. Some called it the Jewish Parliament, it being dissolved on the 8th day, alluding to that people's manner of circumcision on the 8th day (*Luttrell*).

[1681]
[Edinburgh] June the 6:

I am very glad to find by yours of the 24; that before this your warrant was to be paid so that I hope you will now be put to no further trouble, and if at any other tyme or in any other thing you thinke I may be servicable to you pray lett me know it, that I may serve you in it, this place affords but very little newse all things being very quiat, and like to continu so, for here fals witnesses dare not come perjury being death if it had been so in England so many innocent people had not suffred, and things would have been quiater then they are, we have here very long days and no hot weather and this toune begins to be very

empty of company, I heare you are going to Windsor but no apearance of my seing you there this sommer pray lett me heare from you some tyms, and be assured you shall ever find me to be your most humble servant.—J.

Pray when you write do it without ceremony.—J.

For my Niece the Countesse of Lichfield.—J.

[1681]
Edinburgh July 18.

I am very glad to find by yours of the 12: from London, that you are so well after your lying in, and may you long continue so, and I hope as well as you that it will not be long before I may have the satisfaction of seing you there, since his Ma: affairs go so well, but in that I must be governed and submitt to his pleasur as I allways have done. My Daughter arrived here yesterday morning early, having had a very good passage, and now this towne begins to fill with company againe the meetting of the Parliament being to be so sone which I am confident will behave themselves better then those of late have done in England, tis no newse to tell you that Cargill[a] the great covenanting feild preacher, is taken, he has been once examined before the Councell, and is to be it againe to morrow, after which hee will be sone try'd, and I beleve condemned, which is all I have now to say but that you shall ever find me to be your most humble servant.—J.

For my Neece the Countesse of Lichfeild.—J.

In 1679 the Covenanters in the West of Scotland became restless, and on 3rd May Archbishop Sharp was murdered at Magus Muir. After their successful attack on Graham of Claverhouse at Drumclog, 1st June, the Duke of Monmouth was sent against them, and on 22nd June they were defeated at Bothwell Brigg. Some of them, however, held out under Cameron and Cargill, two preachers. Allegiance to the king was renounced, and in a fight Cameron was killed 20th July, 1680. Cargill was not captured for about a year, but he and four others were eventually hanged 28th July, 1681. Some of his followers were executed, and others were drafted into a Scotch regiment in the service of the King of Spain.

The Scotch Parliament met on 28th July, and was adjourned to 1st August and then to the 5th August, 1681.

In October five more of Cargill's followers were executed.

The Countess of Litchfield on the 6th June, 1681, at Windsor, had a second son, Edward Henry, Lord Quarrendon, Colonel of the Guards. He died 21st October, 1713.

The Countess of Rochester (Miss Mallet) died suddenly of apoplexy in August, 1681.

[a] See Burnet, i. 512.

Princess Anne arrived in Edinburgh on 17th July, having embarked on the 12th.

She was now a little over 16 years of age.

[1681]
Edinburgh Aug : 20 :

You must wonder if I have not soner answerd yours of the 2 :, since I have had so much businesse upon my hands ever since I received it, by reason of the sitting of the Parliament, for although a Parliament here be not so troublesome as the English ons have been of late, yett it taks up all ons tyme, I am very glad to find by yours that you had received some part of your mony, as for newse things go very well here, and most of the affairs of concerne are past I meane the giving of mony to his Ma : for the keeping up of the troups, the Dutchesse and my Daughter ride abroad almost every day, the weather being very good, I have now no more to say to you but that you shall always find me to be your humble servant.—J.

For my Neice the Countesse of Lichfield.—J.

[1681]
[London] October the 18 :

the last I had from you was from Woodstock, and beleve this will find you in London, where you will easily beleve, I should be very glad to be, but his Ma : dos not thinke it fitt, and I must submitt to his pleasur, which I hope will be to send for me, when the L Shaftsburys tryal is over, which is sayd must now be very sone, I am very much obliged to you for concerning your self so much for me as you do, and am very glad you are satisfyd with L^{d} Hyde, you may be sure that any with whom I have any power, shall further any of your concerns, this place is now so empty that it affords but little newse, bassett is much in faschion, and some tyms we go to the plays, these players come out of Ireland and are prety tolerable, I am a going to see them this afternone, so that I have not tyme to say more, but that you shall always find me to be as truly your humble servant as you can desire.—J.

For my Neece the Countesse of Lichfield.—J.

[1681]
Edenburgh Nov : 26 :

I had by the last post yours of the 17 : by which I find you had received my last to you whilst you were in the country, and that it was not long since you were come to towne, it was high tyme to leave the country, tho if you had had as fine weather as we have had, till with in these two days, one might have past ons tyme well enough there, I assure you that we here do not passe our tyme so ill as you in England thinke we do, for we have plays ride

abroad, when tis good weather, play at Bassett and have a great deele of good company, but for all that one wishes ons self with ons freinds at London, I am sure I do, but when that will be only God and the King knows, my Daughter acted on thursday last, for the third and last tyme her play, there were five of them that did their parts very well, and they were very well drest, so that they made a very fine show, and such a one as had not been seen in this country before, for other newse there is none all things being very quiat so that I have no more to say at this tyme but that you shall always find me to be your most humble servant.—J.

For my Neece the Countesse of Lichfeild.—J.

1680, 20th Oct.—"Their royall highnesses parted from hence (London) for Scotland; they went down the river in their barges, to embark on the men of war appointed to attend them" (*Luttrell*).

1681, 26th June, Sunday.—"The lady Ann, accompanied with severall ladyes of quality, embarked for Scotland" (*Luttrell*).

July.—"The 12th, the lady Ann, attended with severall persons of honour, imbarqued for Scotland" (*Luttrell.*)

July.—"We are advised from Scotland that the lady Ann, with the other persons of quality, were safely arrived at Leith, and from thence conducted with great splendor to Edenburgh" (*Luttrell*)

28th July.—James took his seat at the Parliament House, Edinburgh, being Commissioner.

The Parliament was then adjourned to 1st August, then to the 5th.

Lord Shaftesbury was indicted 24th November, 1681. The bill was ignored, and later he fled to Holland, where he died 22nd January, 1683.

Mrs. Betterton, actress and wife of the famous actor, was chosen in 1674 to instruct the Princesses Mary and Anne in elocution. Afterwards she was engaged to teach the Princess Anne the part of Semandra in Lee's tragedy of *Mithridates*.

The Scotch Parliament on the 14th August, 1681, passed two Acts, one acknowledging and asserting the right of succession to the imperial crown of Scotland, the other ratifying all former laws for the security of the Protestant religion (*Luttrell*).

[1681]

Edenburgh Dec:

I receved on sonday yours of the 15: by which I was very sorry to heare that Lady Suffolk was dead, and Lady Betty Felton so very ill that there was no hops of hir, and by

the letters come this day I heare she was dead also, you will by the last post have heard what a terrible fall especially to look to, the Dutchesse had and realy t'was a miracle she was not spoyled, and tis a great mercy she had no more harme, she is now God be thanked as well as can be expected after such an accident, and her legs meend a pace but yett she is tyde to ly on hir bed or sitt in a chaire, and it must be yett some day before she must walk, all things are very quiat here, and like to continu so, and tho we passe our tyme well enough here, we should be very well pleased to be at London, and it puts one out of humor when one thinks one is not like to be there so sone, I shall say no more now only to assure you that you shall always find me to be your humble servant.—J.

Pray do not write to me with ceremony.

For my Neece the Countesse of Lichfeild.—J.

1681, 5th Dec.—"His majestie went to Windsor and returned again that day" (*Luttrell*).

"The countesse of Suffolk was seized with an apoplexy the 12th and died the next day. The lady Betty Felton, her daughter, was seized also with a fitt of the same the next day, and died of it" (*Luttrell*).

The Countess of Suffolk was succeeded as Groom of the Stole by the Countess of Arlington.

28th Dec.—"The countesse of Suffolk and her daughter, the Lady Betty Felton, were carried through the citty in great state, attended with severall of his majesties coaches, and many of the nobility's, in order to their interment at Saffron Walden in Essex" (*Luttrell*).

Lady Suffolk was Barbara, daughter of Sir Edward Villiers, and widow of Sir Richard Wentworth. By her second husband, Lord Howard de Walden, third Earl of Suffolk, she had Elizabeth (Lady Betty), who married Sir Thomas Felton of Playford, co. Suffolk, and left an only daughter, Elizabeth, wife of the first Earl of Bristol.

1681, Dec.—"The dutchesse of York [at Edinburgh] had lately a very dangerous fall from a horse as she was rideing; but being speedily lett blood, and means used, she is pretty well recovered" (*Luttrell*).

1681.—On the 30th December Lady Litchfield's brother, Henry, Duke of Grafton, received from the king's hand his commission as colonel of the Foot Guards[a] at a review in Hyde Park, and the day after New Year's the duke entertained the officers of his new command.

[a] Colonel Russell, brother to the Earl of Bedford, having disposed of that command.

On the 23rd November, 1688, when Grafton deserted James II., the king gave the command to Lord Litchfield,[a] who held it till 23rd December, when he resigned it into James's hands at Rochester, and on 31st December Grafton again became colonel until his death at Cork, 9th October, 1690.

[1682]
January the 11:

I was very sorry to find by yours of the 31: of last month, that you had been so ill as you could not answer myne soner, and that when you wrot you were not well enough to go abroad. I hope this will find you in perfect health which that it may, I am sure no body wishes more than I do. I have very little newse to write to you from hence all things being very quiat here, and like to continu so pray God it may do so in England, we have now downe right winter weather, which is the first we have had this season, so that there is no sturing abroad, which is a great mortification for me, that love best the divertions without doors, then those within, the Dutchesse plays offten at Bassett, and my Daughter dances country dances as offten, which the Dutchesse cannot yett do, her leg not being quite well enough for that tho she walks about. I have now no more to say but that you shall allways find me as truly your humble servant as you can desire.—J.

For my Neece the Countesse of Lichfeild.—J.

[1682)]
Edenburgh Jan: 31.

I have received yours of the 24: and if the place where you are affords so little newse pray what must this do, where we have no Morocco nor Russian Embassadors to divert us nor God be thanked such disorderly yonge men as Mr Harry Wharton, to disturbe the play house or kill horses, this it seems is the second tyme he had done those feats, all things here are very quiat every where, and now we have very good weather which I make use on by being abroad every day and playing at Goffe, which is the only divertion I can have without doors, this not being a good hunting country, within doors we have plays, Bassett and Billiards, and do not pas our tyme so ill here as may be you thinke, however I should be glad to be at London, but where so ever I am you may be sure I shall be always your most humble servant.—J.

For my Neice the Countesse of Lichfeild.—J.

1682.—On New Year's Day an ambassador from Morocco arrived in England and reached his lodgings in the Strand on the 5th.

The lions which he brought as presents to the king were put in the Tower menagerie and some ostriches into St. James's Park. On the 11th the ambassador had audience of the king and queen in the Banqueting House, Whitehall, when it

[a] Robert, Lord Hudson, was appointed Colonel of the 12th Regiment, 30th November, 1688.

was noticed that neither he nor the king bowed to each other. Two days later the ambassador and his suite gave an exhibition of riding and shooting before Charles in Hyde Park. On the 16th the king granted an audience in his bedchamber, and afterwards, by permission of Charles, a visit was paid to the Duke of Monmouth, who invited the ambassador to hunt in the New Forest. On the 27th, before a very great crowd, he and his suite gave another performance in Hyde Park, and during this and the next month visited the sights of London, being made a member of Gray's Inn and Fellow of the Royal Society. In March a treaty of peace was signed, and in April the ambassador stayed with the king at Newmarket. After visiting Oxford, Cambridge, etc. he left England at the end of July, having had a successful and pleasant stay in this country.

Evelyn in his Diary gives a very full account of this visitor, and speaks highly of the behaviour of him and his suite on all occasions, bearing himself with "extraordinary modesty and gravity. In a word the Russian Ambassador still at Court behaved himself like a clowne compar'd to this civil heathen." The Russian had arrived on 20th November, 1681, and was lodged at Charing Cross. He had his audience on the 23rd, when he gave Charles rich hangings he had brought with him, and furs and ermines. He came to settle a free trade with England. On the 10th January, after having been well entertained and shown about to the playhouses, etc. he had his audience of leave. Evelyn was not alone in his estimate of this envoy, for Charles Bertie, writing to Viscountess Campden, 22nd November, 1681, says, "Yesterday the Grand Czar's Envoye made his entry with a lamentable attendance of lowsy fellows." Lady Anne Howe, writing to the Countess of Rutland about the Moroccan, says, "he has a very ill opinion of the ladies of England, and I thinke some of them have given him too just reason for it . . . . the thing they did was soe shameful that I know not how to write it to your Ladyship."

Evelyn, under 7th February, 1682, mentions Mons. Isaac as being reputed the best dancing master.

Mr. Harry Wharton was the youngest son of the 4th Lord Wharton, and so a sort of uncle of Lady Litchfield. "He was a brave bold man . . . . assumed the habit of a player and sang Lilibulero[a] before James II. which wasn't pretty manners. He died (a colonel) in the camp before Dundalk, 1689, and did not leave behind him a better officer or truer Englishman."

In February, 1686, Peregrine Bertie writes to the Countess of Rutland that Harry Wharton who would but for the falling of his horse have separated the com-

[a] Composed by his brother, Lord Wharton.

batants in the fatal duel between the Duke of Grafton and Jack Talbot in Chelsey fields on February 2. Talbot was killed and —— Duncombe, the duke's second, was wounded. Harry Wharton the same night had "the ill fortune" to kill an Irishman who was lieutenant in the same regiment. They fell out at supper and the Irishman struck him twice before he drew, "soe that hee cannot fail of coming off very well."

Wharton was in 1685 a lieutenant in the Coldstream Guards. In 1687 he was captain, and William III. made him colonel of the twelfth regiment of foot, Lord Litchfield's old corps. He died at the siege of Carrickfergus, 28th October, 1689, and was buried in Dundalk. Story says of him "a brisk bold man, and had a regiment that would have followed him anywhere, for the officers and men loved him. . . . . He was of a comely handsome person and gifted with a rare understanding."

[1682]
Edinburgh Feb: 19:

I find by yours of the 9 that it was reported I was to be suddenly with you, and that the Dutchesse was with Child, I wish the first were as true as the second, for then I should sone have the satisfaction of seing you at London, but tho it be so much taked on where you are, I heare nothing of it from those who aught best to knew it, the letters of this day brought the newse of Tom: Thynns having been assassinated, and how ready some people there were to lay it upon the poore Catholiks, and twas well the murtheres were so sone found out, all things are so quiat here, that I have no newse to tell you, but that we have plays twise a weeke here in this house, the Dutchesse not caring to stur out, but that divertion will sone be at an end for when Lent coms we shall have no more plays, so that bassett will be the cheef divertion with in doors, the weather now grows good so that now every day almost I get abroad, I have now no more to say but that you shall always find me to be your humble servant.—J.

For my Neece the Countesse of Lichfield.—J.

Tom Thynne was killed 12th February, 1682, and there was much excitement about it in London.

[1682]
Newmarkett Mar: 22:

I (hope) you will pardon me for being so long before I answerd your letter I receved since I came hither, but realy what with wayting on his Ma: the Scots affairs, and so much company as come to me, I have not any tyme to myself, but now that I have it I would not

faile to lett you know how much I am obliged to you for what you have sayd to me in your letter, I hope now I shall have the satisfaction of seing you at London the begining of next month, how sone I shall go into Scotland after that I do not know, we have the worst weather now I ever saw, at this tyme of year which makes this place not so pleasant as it used to be, but for me I like it very well since I have the happynesse of being with his Ma: I shall say no more now but to assure you that I shall always be your most humble servant.—J.

For my Neece the Countesse of Lichfeild.—J.

1681-2, March.—"His royall highnesse the duke of York arrived at Yarmouth in one of his majesties yatchs the 10th, and was entertained by the magistrates of the town at dinner; and that afternoon he went to Norwich, attended with a great number of gentlemen, where he came that night, and was splendidly entertained by the mayor and aldermen: the next morning he parted thence for Newmarket, accompanied by many gentry, where he arrived that evening, and was received by his majestie with all the expressions of kindnesse imaginable, and since his arrivall there hath been waited on by most of the nobility to pay their respects to him" (*Luttrell*).

1682, April.—Viscountess Campden, writing to her daughter, the Countess of Rutland, at Belvoir Castle, says:

"I heare nothing of our Earldome but if wee have it my brother Norrys will be made fast (first), and some says that the Earldome my Lady Lichfield has to sell for 8000 must bee the first Earle of all, and she is not to sell it under the degree of a Vicounte, which I believe will longe bee a finding. All wonders my Lord would parte with his money tell the Earldom was past."

The Hon. James Bertie, sixth son of Montague, second Earl of Lindsey, was born 1653, was created Baron Norreys of Rycote 12th May, 1675, and Earl of Abingdon, 30th November, 1682. He married first Eleanor, daughter and heiress of Sir Henry Lee, third baronet. She was first cousin of the Earl of Litchfield.

Laurence Hyde, second son of the first Earl of Clarendon, who was created Earl of Rochester 29th November, appears to be the only other earl created in 1682.

1681, 15th Nov.—Charles Bertie, writing to his sister, Viscountess Campden, at Exton says, "My brother Norreys is to be made Earl of Abingdon by the favour of Lord Halifax," and on 18th November he writes to the Countess of Rutland to the same effect, but adds "by the singular favour of my Lords Hyde and Halifax."

[1682]
Windsor April 30:

I was in hops before this you would have been here, but now by what I am told I you are not likly to come hither before I go, and so I shall not have the satisfaction of seing you, till I come back from Scotland, for when I go from hence I shall go straight to the yacht, and not call in at London at all, and this I do by advice, and not by inclination for I should have been very glad to have stayd there one night, but pray do not take notice that I have sayd this to you, as for the tyme of my setting out from hence I believe it will be on Wensday, if the ship I am to go in which is at Portsmouth can gett out of the harbor by that tyme, as for newse there is none here, for as for the weather it is the same with you, that it is with us, only it keeps us prisoners, for there is no sturing out farther than the little Parke, the waters being still so much out and the ways so durty, that I have not been able to go farther, and this day has been so very rainy that I have not been able to walke abroad at all but a little in the morning early upon the terrasse, I shall trouble you with no more now but assuring you I am very sorry I shall not see you before I go, and that you shall always find me to be your most humble servant.—J.

1682, 8th April.—"His majestie and his royall highnesse returned from Newmarkett (to London), who were waited on by most of the nobility here in town, and at night was ringing of bells, bonefires, &c."

"His majestie is at Whitehall, in the lodgings of the duke of York, his own being building up; and the duke of York is at St. James's."

"The 22d their majesties and his royal highnesse parted from hence to Windsor."

"The 26th, at night, happen'd vast showers of rain, which did considerable damage to severall places . . . . . and most of the roads in England so bad, that they're hardly passable" (*Luttrell*).

Edenburgh May 9: 1682.

I could not soner then now lett you know I had receved yours of the 2: from London, for I had it not till I was in Margate road, as your Lord may have told you, and then had not by me to write, you will before you receve this have heard of my being safly arrived here, tho the frigat in which I was in, was lost upon a Sand called the Lemmon, as I came hither, God be thanked I and most of the people of quality gott of but L^{d} Roxborow, L^{d} Obrian and two or three Gentilmen were drownd, and many of my under servants, but this accident has not discouraged the Dutchesse from going by sea and I hope to sett out from hence by monday next, whieh will be by that tyme you receve this letter, and if I have

a faire wind it will not be long before I shall be at Windsor where I shall assure you myself that I shall always be your most humble servant.—J.

For my Neece the Countesse of Lichfield.—J.

James, in the life written by himself, and quoted by Macpherson,[a] says the wreck occurred "through the unskilfulness or treachery of Captain Ayres, the pilot, who was afterwards tried and condemned for it." Ayres' intention was to follow the colliers' route betwixt the coast and sandbanks, but the commanders were against it, and ordered him to go out to sea, thinking to clear them all. But he still persisted to tack, fancying he had time enough to go within the banks. At last leave was given him when the commanders thought themselves far enough out at sea to go beyond them all, but they were deceived. "For soon after the ship struck on the Lemon Ore near Yarmouth roads where she stuck some time and had not too much haste been made to clear her all the passengers and seamen might have been saved. As soon as she came into deep water she sunk and at least a hundred persons in her. The Duke of York got into his shallop and went on board the yaucht taking the Earls of Perth and Middleton with him, none offering to go into it but whom he called viz. Churchill and one or two more. But the other boats coming to their assistance, most of the persons of quality and the Duke's servants got off also; and many more might have been saved had it not been for the timorousness of the boatmen, hindering them from coming near the ship when they thought her about to sink, for fear of sinking with her. Those left as they were ready to sink gave a loud huzza! when they saw the Duke of York safe."

The *Gloucester* was a third-rate of 765 tons, 60 guns, and 340 men.

Amongst the "quality" who were drowned was James Hyde, James's own brother-in-law, but he does not mention him.

James came back to England from Leith in *The Happy Return*, 625 tons, 56 guns, 280 men, and arrived 27th May. Charles met them at Erith. About 130 persons were lost. Lemmon Ore Sands are off Yarmouth. Ayres was tried on 6th June and condemned to perpetual imprisonment.

Sir John Berry, however, was on the 25th June made commander of the *Henrietta*, a third-rate frigate, 763 tons, 62 guns, 355 men.

Robert, third Earl of Roxburgh, a Privy Councillor to Charles II., married Lady Mary Hay, daughter of John, Marquis of Tweeddale, who survived him seventy years.

[a] *Original Papers*, 1688-1714 (London, 1775), i. 135.

Donogh or Donatus O'Brien was elder son of Henry, Lord Ibrackan, who died 1678, in the lifetime of his father, Henry, seventh Earl of Inchiquin, by Anne, daughter of the fifth Earl of Thomond. Donogh O'Brien married in 1682 Lady Sophia Osborne, daughter of Thomas, Duke of Leeds. His widow afterwards married William, Lord Lempster, and was mother of Thomas, Earl of Pomfret.

Windsor June 21

If you have had no better weather since you went from hence, then we have had, you will not have past your tyme very well in the country, and if it continus as bad as it is now, we shall not have much pleasure in the voyage we are to make, which will now be certainly on friday, hir Ma: as I am told will sett out to-morrow night, after she has supped with the King, tho there be neither heat nor dust, whilst we are all away, the Dutchesse will be very much alone, but it will not be for long for I think we shall be back here againe by this day sennight, when I come to London tis likly I may have some newse to write to you, but this place affords none new so that I shall end, and that with assuring you I shall ever be your most humble servant.—J.

For my Neece the Countesse of Lichfield —J.

On the 23rd June the king came to town, went down to Woolwich in his barge, and returned at noon. The journey referred to was to Chatham to see the *Britannia* launched. This took place on 27th June. She was a first-rate of 1,540 tons, 100 guns, and 780 men. *See* 15th September of this year. The *Royal Sovereign*, which the *Britannia* was intended to exceed in size (though she did not do so), was built in 1637, was a three-decker, and it was computed cost £3,500 every month at sea. The cost of building such a ship was £62,432. When she was built she was supposed to be the largest ship in Europe.

[1682]

S^{t}: James July 2

Since I wrot to you last, I have been almost in perpetual motion, for what with my going bettwene this place and Windsor, and the voyage I have made with his Ma: in his yachts downe to the Northforland, I have hardly been two days in a place, we came back this morning from our sea voyage, having mist the D^{s}: of Portsmouth who came up by land from the Downs, as we went downe by sea, which made us make hast back, we had very bad weather and some little accidents which rather served to divert us rather then any other thing els, his Ma: will not, as I beleve stay here longer then wensday next, and till then he will stay, it being the day for the election of the Sherifs and tomorrow I intend to go to Windsor to see the Dutchesse, and to be back on tuesday night, the Dutchesse of

Portsmouth looks clearer than she did at least it seems so to me, so that her going to the waters must needs have done hir good, as for newse of the towne I have been so little in it that I am not well enough informed of it, to ventur to tell you any of it, and besids now that Mrs: Bromley is in towne, I supose you will not faile to heare them, when I know any worth your knewing I shall be sure to lett you know them, and beg of you to beleve I shall always be your most humble servant.—J.

Louise de Keroualle, Duchess of Portsmouth, so created 19th August, 1673, was born in 1649, and came over in the suite of the Duchess of Orleans ("Madame") in 1670. In 1682 she went to Bourbonne to take the waters, and in Paris, on her way back, she met the Duchess of Cleveland.

After the death of Charles she left England in August, 1685, and returned to France in 1686, where she died 14th November, 1734, aged 85.

1682, June.—"The 27th, a first rate ship was launched at Chattam, called the Britannia, being larger than the Soveraign."

"The 30th also his majestie went down the river to Sheernesse, there being six meals of provisions carried."

3rd July.—"His majestie is returned from Sheernesse; and the dutchesse of Portsmouth is also arrived at Whitehall from France" (*Luttrell*).

[1682.]
Windsor July 9.

I had but yesterday yours of the 3: and came away from London so sone after diner that I could not till now lett you know I had receved it, I see by it that you had then had but one of myne, and that you had not had better weather then we here, I hope now you have the same that we have, and then you will have very good and warme which is so resonable at this tyme of yeare, till this affaire of the Sherifs shall be over, we shall not be long settled here, for on thursday his Ma: gos back to London, and I beleve the Queene to, but I hope we shall not stay there above a day or two there, for I should be sorry the Dutchesse should be any longer alone here, she having been it so long already. I send this under Mrs. Bromleys cover who can so well informe you of all the newse here that I need not write any more to you, but to assure you that you shall always find me to be your most humble servant.—J.

For my Neece the Countesse of Lichfield.—J.

"The 23rd, his majestie came to town, and that day went to Woolwich in his barge, and returned at noon."

1682, June.—"The 24th, being the usuall day for electing of sheriffs for the citty of London, many of the livery men appeared at Guildhall; one party cryeing up North and Box, and the other Dubois and Papillion . . . . There was some kind of riot and tumult committed in the poll; but at last the sheriffs also adjourned the court till Tuesday next at 9 of the clock . . . . But the 25th the lord mayor went and complained to his majestie against the sheriffs; who being summoned to appear at the councill, they did accordingly the 26th . . . . they were committed by order of councill to the Tower."

"The 27th, the lord mayor, aldermen and citizens of London mett at Guildhall about election of sheriffs: there were great numbers of the citizens, but his lordship thought fitt to adjourn the court to Wednesday sevenight."

"The 30th, the sheriffs of London, Mr. Pilkington and Mr. Shute, were brought up from the Tower of London to the court of kings bench on a second habeas corpus . . . . The two principalls were bound in 2000*l.* apeice, and the bail in 1000*l.* each" (*Luttrell*).

On the 5th July the sheriffs having appeared at the Court of King's Bench went to the hustings. There was a poll, with the result that North had 1557, Box 1609, Papillion 2754, Dubois 2709, and the two last were declared sheriffs.

"The 8th, his majestie went to Windsor."

"The 13th, his majestie returned from Windsor to Whitehall early in the morning."

"The 16th, early in the morning, his majestie went for Windsor" (*Luttrell*).

Mrs. Bromley appears in the 1684 State of England as one of five bedchamber women to the Duchess of York at a salary of £150.

[1682]
S^{t} James's Aug: 2.

I had yours of the 27: of the last month on monday, went a hunting on tusday, and came this day hether, and so could not answer it soner, the Dutchesse will not now stur from herce till she is up againe, but I shall go offten bettweene this and Windsor, as for newse Madame la Dauphine is brought to bed of a Sonne, which is no small joy to the King of france, Lady Eliz Delaval is now a widdowe, her husband died last night at Windsor, on friday I intend to wayte on his Ma: againe, and shall make use of this faire weather to hunt in, which is a divertion you dare not use, in the condition you are in, I am but just come to towne, and so have no other newse to tell you, and hope you will always do me the justice to beleve that I shall always be your most humble servant.—J.

For my Neece the Countesse of Lichfield.—J.

Lady Elizabeth Delaval was daughter of Sir James Levingstone, who was created Earl of Newburgh in 1660. She married Robert Delaval, eldest son of Sir Ralph Delaval, who, 2nd April, 1646, married Lady Anne Leslie, Mistress of Lovat, daughter and heiress of Lord Leven. Sir Ralph died 29th August, 1691, aged 68, and Lady Delaval died in 1696. Robert Delaval died 1st August, 1682, and his widow afterwards married Henry Hatcher.

[1682]
Windsor Aug : 18 :

I realy have not had so much tyme to my self as to writ to you, since the Dutchesse was brought to bed, till now, for on wensday what with wayting on his Ma : all the time he was in London, that day, and businesse, I could not then write and yesterday that I came from London I was a hunting, had a great chasse and came not home till after twelve at night, the Dutchesse is now I thanke God very well, she was a little out of order yesterday it being the third day, but I have heard this day that she much more at ease, the child is a lusty one, as they tell me, and very well, to morrow I intend to go back to London, and on wensday his Ma : is to passe by there to go downe to Greenwich to see a new yacht lanched, and to be back here at night, and he designs to be at Winchester by the last of this month, there being a plate to be then run for there, yonge M^r^ Griffin is very ill of his fall and they begin to fear he will dy, I have now no more newse to tell you so that I shall give you no further trouble but the assuring you of my being as much as ever your most humble servant.—J.

Charlot Maria, third daughter of James, Duke of York, by the Duchess Mary, was born at St. James's on the 15th August, 1682, and on the 17th christened by the Bishop of London. Her godfather was the Duke of Ormond, and her godmothers Countess of Arundel and Countess of Clarendon. She died 6th October following, and was buried in the vault of Mary, Queen of Scotland, on 8th October.

Young Mr. Edward Griffin was the son of Sir Edward Griffin of Braybroke, Gentleman of the Privy Chamber in 1670, and Treasurer of the Chamber. Sir Edward died in 1681, and his son became Lieutenant-Colonel of the Duke of York's Foot Guards, now the Coldstreams.[a] On 3rd December, 1688, he was raised to the peerage as Baron Griffin of Braybrooke. He stuck to James II. and followed him to France, and was outlawed. In 1708, when an invasion of Scotland was attempted, he was taken prisoner off the coast, and put in the

[a] In 1685 he was colonel of the 1st troop of Horse Guards (Life Guards). Having followed King James's fortunes he is now in France. He was always a great sportsman and brave ; a good companion, turned of sixty years old (*Macky*).

Tower, where he died, November, 1710. His grandson, Edward, third Lord Griffin, died 1742, when the title became extinct.

[1682]
London Aug: 28.

At my arrival here last night I receved yours of the 25: by which I was very sorry to heare you had been in disposed, and that that had hindred you from writing to me, the going to Winchester will not hinder, nor shorten his Ma: going to nor his stay at Newmarkett, but I cannot yett tell you when the Newmarkett journey will be, he having not yett sayd when he will come from Windsor hither, tho I asked him yesterday when it was to be, but I beleve that some tyme next week he will go and try his new yacht, which was lanched last weeke, and then I cannot thinke he will go back againe to Windsor it being so late in the yeare, I beleve before this getts to you, you will have heard of Lady Henriette Berkleys being run away from her fathers, some tyme last weeke, there is yett no newse of her whither, nor with whom she is gone, tis talked as if she had drownd hir self, but I cannot beleve that she was of such a temper as to have done that, on Wensday I go back to Windsor, and the next day with his Ma: to Winchester were so ever I am I shall still be your most humble servant.—J.

For my Niece the Countesse of Lichfield.—J.

Lady Henrietta went off with Forde Grey, third Lord Grey of Werke. He married Mary, daughter of George, Lord Berkeley, and had an only daughter, Mary, who married Charles Bennet, second Lord Ossulston, and afterwards Earl of Tankerville. Lord Grey was in the Monmouth rebellion and commanded the horse at Sedgemoor; there he deserted and made terms by giving evidence against his friends. William III. in 1695 created him Viscount Grey of Glendale and Earl of Tankerville. He was afterwards a Lord of the Treasury, a Privy Councillor, and in 1700 Lord Privy Seal. For seducing his sister-in-law, Lady Henrietta, he was committed to the King's Bench Prison and tried with five others on the 23rd November, and found guilty.

Lady Henrietta declared she was the wife of Sir William Turner's son. There was a row, so she and her husband were committed to the King's Bench Prison, but after her release she left her husband again.

Soon afterwards, being concerned in the Protestant or Rye House Plot, Lord Grey fled to Holland.

He was taken in disguise at Ringwood after the battle of Sedgemoor, and sent to the Tower with Monmouth. He died in 1701.

[1682]
London Sep: 15:

I had the satisfaction of yours of the 5: just before I went downe to Chatham with his Ma: but could not answer it soner then now, I see by it you then beleved Lady Hen: Berkley had made her self away, but it provs not to be so, for she is certainly gone away with some body, but with whom is not yett knowne, tis sayd she has written to her father, and declared it was discontent made her go away, but gives no account where she is, his Ma: is very well pleased with the new ship he went to see at Chatham, called the Britannia and as well with his new yacht the Fubbs, she out sailing all the old ons, the Newmarkett journey is put of till the begining of October, I am sorry we shall be away when you come to towne, and by what I heare amongst the women beleve you will be brought to bed before we come back hither, I shall now say no more but to assure you that I am more then ever your most humble servant.—J.

The *Britannia*, a first-rate, being larger than the *Soveraign*, was launched at Chatham 27th June. See letter of 21st June. She was 5 tons less and carried 35 men less than the *Soveraign*.

1682, Sept.—"The 11th, his majestie and his royall highnesse went down the river to see the new yatch[a] sail that was lately lanched at Greenwich, and returned to Whitehall again the 13th" (*Luttrell*).

Lady Litchfield was confined of a son, James, 13th November, 1682, at St. James's Park.

London Sep: 29: 1682.

I have had your last letter in which you tell me you thinke you shall be brought to bed before we come back from Newmarkett, I believe it may be before his Ma: returns hither, but not before I do, for I intend to make a step hither from thence some day of the weeke after the next weeke, for a day or two, by wihch tyme I hope you will be here, monday is now sett for going to Newmarkett, affairs having gone very well in tho Citty yesterday where the two Loyal Sherifs North and Riche were sworen and are now in possession of their office, which is a great mortification to the Whigs, they are now electing a new L[d] Mayor, and there is not yett come to this end of the towne an account who it is they have chosen, if he be not a good man he will not be aproved on by the King, I am just now told

[a] The *Fubbs* yacht, of 8 guns, with a crew of 30 men. Our Fellow, Mr. W. Barclay Squire, has kindly referred me to Sir J. Hawkins's *History of Music*, 1776, in which work, at vol. iv. p. 359, it is noted that the king's yacht derived her name from the Duchess of Portsmouth, whose plump and pleasing figure had got her that name from her royal lover. There is still in Greenwich a public-house called The Fubbs Yacht.

the pole is put of till monday, which maks me doubt whether his Ma: will on monday, but that will not be knewn till to morrow, I shall now say no more but to assure you, you shall always find me to be your most humble servant.—J.

1682, Oct.—"The 3rd, in the morning early, his majestie and his royall highnesse, with the court, went for Newmarkett" (*Luttrell*).

Sir Thomas Gold was elected Lord Mayor on the 4th October.

Sir Dudley North, son of Dudley fourth Lord North, died 1691.

Sir Peter Rich died while alderman 26th August 1692.

[1682]
Whitehall 2 Oct.

I have had so much businesse since I came hither that I hope you will not think that I have neglected writing to you out of want of kindenesse to my deare charlotte, I am going to newmarkett to morrow, and have a great deale of businesse to dispatch to night therefore I will only tell you now that I have five hundred guinyes for you w^{ch} shall be ether delivered to your selfe or any who you shall apointe to receave it, and so my deare Charlotte be assured that I love you with all my harte being your kinde father.—C. R.

For my Lady Litchfield.

1682, Oct.—"The lady Maria Charlotte, his royall highnesse's youngest daughter, was taken very ill with convultion fits, without hopes of recovery; of which an expresse being sent to his royall highnesse at Newmarkett, he took post, and came to St. James's the 5th at night."

"The 6th, the lady Charlotte Maria, daughter to his royall highnesse, departed this life, to the great greif of their royall highnesses."

"The duke of Yorks daughter, lately deceased, was interred privately in Westminster Abby the 8th."

"His majestie continues still at Newmarkett, diverting himself with hawking and horseracing; of which latter there have been severall considerable races run."

"The 14th, his royall highnesse went for Newmarkett" (*Luttrell*).

[1682]
Whithall 22 Oct:

I should not have been so long in writing to you my deare Charlotte but that I was at Newmarkett where too all day about businesse I had little time to spare, and though I have very much businesse now, yett I must tell you, that I am glad to heare you are with child, and I hope to see you heere before it be long, that I may have the satisfaction my selfe of telling you how much I love you, and how truly I am your kinde father.—C. R.

For my Lady Lichfielde.

The king returned from Newmarket 21st October, 1682.

[1683.]
Newmarkett Mar : 14 :

If this place had had any newse worth your knowing, I should have write it to you before now, but it never was duller nor lesse diverting, for ths weather has been so very bad, and so cold, that it has very much spoyled all the divertions here, it having been hardly wether to stur out of doors, so that cock fighting, has been almost the only thing one could do here, and that for the most part we have twise a day, I have been a fox hunting thrise and for all the cold season, have had very good sport, to morrow I am to go to it againe, the D^{s} : of Portsmouth is not very well, having complained of a paine in her head all day yesterday with a paine in her stomake and an inclination to vomite, she was lett bloud this morning, and keeps hir bed, and continues still ill, his Ma : says he will go to Euston, but has not yett named his day, I have now told you all the newse of this place and so shall end which I do with assuring you of my being still your most humble servant.—J.

For my Neece the Countesse of Lichfield.—J.

[1683.]
Newmarkett March 21 :

I had last night yours of the 8 but having been a fox hunting yesterday could not answer it till now, and shall be sure to speake to his Ma., as you have writen to me to do, before I leave this place, when I find him in good humour, I should have writen soner to you, if this place had furnished any newse worth writing to you, but till now with in this day or two, there has been very little company here, and I never knew a meetting at this place where there was so little company as now, and I do not beleve there will be much company here at any tyme whilst we stay here, but tho there are not so many people this tyme, yett the weather has been much better then it was this tyme twelve month, and for all it has been a little windy it is not cold, the Dutchesse and my Daughter have been several tyme abroad to take the aire on horse back, and twice to see the cock fighting, for horse matches there has been but one, which was yesterday, but this weeke they say there will be more, her Ma: has not yett playd at Bassett, which makes the drawing roome very dull, and I beleve will not whilst she stays here but the Dutchesse dos, if I had any other newse to tell you I should write it, and beg of you to beleve I shall always be your humble Servant.—J.

1682-3, March.—"The 3d, in the morning early, their majesties and his royall highnesse went from Whitehall to Newmarket, the cariages and wagons being gone three or four daies before."

"The 5th, her royall highnesse went hence (from London) for Newmarket."

"Letters from Newmarket inform, that their majesties are in good health, and divert themselves with hawking, hunting, and horseracing, &c."

"On the 22d instant, at night, between nine and ten, a fire happened at the town of Newmarket . . . . . it consumed above half the town . . . . . but his majesties house received no damage."

1683, March.—"The 26th, in the afternoon, their majesties and their royall highnesses returned to Whitehall from Newmarket" (*Luttrell*).

This was the period of the Rye House Plot, which was upset by the king's early departure from Newmarket on account of the fire.

Fitzroy was created Duke of Northumberland 6th April.

29th March, John Verney writes: "I hear ye Queen & Dutchess are not cater cousins, ye latter having at Newmarket given ye country ladyes leave to come to her in mantos. Her court was every night full & ye Qu sate alone. So when ye fire happed ye Dutchess & Lady Anne went to ye Queen's doore to attend her, but she sent them out word she would be private. Then they went to Ld Suffolks whither the Qu &c being also to goe, said she would fill up ye house her selfe, soe ye Dutchess &c. removed to Rochester's."

"In May the Duke & Duchess of York & the Lady Anne were entertained at Rycote by Eleanor Lee Countess of Abingdon the cousin of Lord Litchfield." (*Memoirs of the Verney Family*, iv. 270).

London July : 19 : 1683.

I have not writen to you since I came here having had so much businesse, and so little tyme to my self, that realy I could not, and besids that I could not have begun to write you newse with out having made my letter long and that I had not leasur to do, but now God be thanked there is so great a discovery of this horrid conspiracy, and some of them as you knowe are condemned, and will be executed to morrow and next day, that we have not so much businesse to do, the Prince of Denmarke is come in to the river, and will I beleve be here this evening, which makes me write now because this afternone, I should hardly have tyme to write then, and now I shall be more punctual of doing it, but now I shall say no more but assure you I shall always be your most humble servant.—J.

The "horrid conspiracy" was the Rye House Plot, which had failed four and a half months before.

1683, July.—"The 19th, in the afternoon, prince George, brother to the king of Denmark, arrived at Whitehall, and was kindly received by their majesties

and their royall highnesses, being come to make his addresses to the lady Ann, daughter to his royall highnesse."

"The 21st, William lord Russell, being lately condemned on account of this new conspiracy, was brought in his own coach from Newgate, with a most extraordinary guard of watchmen, and the train'd bands on each side of the coach and behind, accompanied with Dr. Tillotson, dean of Canterbury, and Dr. Burnet, in the coach: he went very unconcerned to the place of execution, which was at the west end of Great Lincoln's Inn feilds,[a] where a scaffold lined with black was erected on purpose. There were many spectators, and numerous guards of the kings horse and foot. He said but little, but delivered a paper to the sheriff (afterwards printed), and prepared himself, after praying, for his execution, to which he submitted himself very chearfully; but Ketch the executioner severed his head from his body at three strokes, very barbarously" (*Luttrell*).

[1683]
London July 28:

The marriage is to be this night and I write now before it is over because should I stay till then, I should not have tyme to do it the post going away this night, for their Ma: will be both there and I beleve will stay at S^{t} Jamess till they are bedded, the Dutchesse Lady Anne, and Prince George are gone to the play, and I am sent for to attend his Ma: so that I can say no more but that I shall always be your humble servant.—J.

For my Neece the Countesse of Lichfield.—J.

1683, July. "The 28th in the evening was celebrated at St. James's by the bishop of London, the mariage between prince George and the lady Ann, his majesties niece" (*Luttrell*).

[1683]
Windsor Aug: 9:

I have just now received yours of the 8: and twas very very charitably done of you to write so in favor of old Col: Legge as you have done, I immediatly went and spoke to his Ma: in his favor and sent to L^{d} Clarendon in whose gift it seems it is, who tho he had an engagement upon him, for an old servant of the family, will see what he can do to lett Jack Legge have it, I am just this moment a going to London so that you must pardon me for saying no more now but that I shall always be your most humble servant.—J.

I intend to be back here againe by Sonday.—J.

For my Neice the Countesse of Lichfield.—J.

[a] 'Right against the Marquis of Winchester's house where the wrestlings are used to be." (*Verney*, iv. 271.)

[1683]
Windsor Aug: 15:

I would not defer writing to you any longer, tho there be but very little newse sturring here, since you went from hence, for London, as those who come from thence, say, is very empty, and when that is, you will easily beleve this place to not very full, but that dos not hinder bassett being almost every night at the Queens and Dutchesses, and crimp at the D^s^ of Portsmouths his Ma: was a buck hunting on Monday last in Cranborne, the Dutchesse and the rest of the Ladys that care to ride were there, twas the first tyme She and my daughter had ever seen that sport, they liked it very well, you have your share of the ill weather, which has hindred any sturing out of doors for these two days, to morrow I am to Stag hunt, and have no more to say now, but that you shall always find me to be your most humble servant.—J.

1683, August.—"His majestie and the court, haveing been a considerable time in town since the discovery of this new plott (Rye House), returned the 1st instant to Windsor" (*Luttrell*).

Crimp is mentioned in *The Spectator*, No. 353, 11th March, 1711-12.

Henry, Earl of Clarendon, was Treasurer and Receiver-General of the Queen's Household in 1684.

Colonel Legge was fourth son of Edward Legge, Vice-President of Munster, by Mary Walsh. He was lieutenant-colonel of the Marquis of Antrim's regiment in Ireland *temp.* Charles I., and was long time a prisoner at Plymouth and condemned to death. He was afterward committed to Bristol. In James II.'s reign he was made Deputy-Governor of Jersey and Ranger of Whichwood Forest, Oxon. He died 1702, aged 109 years.

Windsor Aug: 25:

I had yours of the 22: two days since but my going to London yesterday hindred me from answering it till now that I am come back from thence, I was very sorry to find by it, you had been troubled, with with a paine in your eare, and a defluction on one side of your head, but was well pleased to see it was over and that you had been a hunting, the Dutchesse liks that sport now very well, and had a very fine chase the other day, she stays this day w^th^ my Daughter, to see the faire and do not intend to be here till to-morrow, night, the post is ready to go, so that I have not tyme to say more but to assure you that I am still your most humble servant.—J.

For my Neece the Countesse of Lichfield.—J.

Winchester Sep: 8.

Till last night I had not yours of the 4, and you are in the right to say this country is a very proper place for women to ride in, for I never saw a finer, for all feild sports, the Dutchesse and my Daughter, have been severall tyms a hare hunting with little beagles and are mightily pleased with that sport, I have been but once a stag hunting since I came, the voyage to Portsmouth, having hindred me from going oftener, but on monday I intend to go a hunting againe, we went on wensday by Southampton where we embarked, and so to Portsmouth, gott thither by none, and stay there to see the fortifications, and ships, till yesterday morning; that we came from thence, and gott back hither presently after three, in the afternone, none of the Ladys but the D[s] of Portsmouth were there she, went and came by land all the way, his Ma: Hawkes every day, there is yett no positive day named for our going back to London, I beleve it will be about this day fortnight, I have no more to say but that I hope you will be there by that tyme, and assure you I shall always be your most humble servant.—J.

For my Neece the Countesse of Lichfield.—J.

1683, August.—"His majestie, with the whole court, is gone from Windsor to Winchester, to passe some short time" (*Luttrell*).

[1683]
Winchester Sep: 13:

When I came back with his Ma: from the Portsmouth voyage I receved yours of the 7: and tho we have had much raine here, it has happned so, as not to hinder neither hunting, nor hawking, I was out this day a Stag hunting and tho it rained most part of the day, we killed our Stag, after to morrow the Dutchesse, Prince, Princesse, and my self, are to go to Salisbury, to see that Church and Wilton, and on Wensday from Salisbury to Southampton, and thence to Portsmouth in the yachts, and hope to be back here thursday night, or friday morning this night the King declared he intended to go for London on the 25 of this month, which is some days soner then we thought, but I feare as we go soner from hence, we shall stay no more days at London then we did last yeare, before we go to Newmarkett, I have now told you all the newse of this place, and hope it will not now be long before you be at London, I have not tyme to say more now, but to assure you I shall always be your humble servant.—J.

For my Niece the Countesse of Lichfield.—J.

[1683]
Winchester Sep: 21:

I find by the last I had from you that you had ended buck hunting and intended to try if you could keep in at fox hunting, in that country and at this tyme of yeare you may I am confident easily do it, I have now done Stag hunting for this season, and shall begin fox hunting, so sone as I come to London, if it be not to dry, which it will be with out it rains, on tusday their Ma: sett out for London, and I and all myne the day before, but in going to newmarkett, I beleve we shall go after them, there is yett no day named for that journey, but beleve it will be some day the weeke after we arive at London, so that I am affraid, by what you say in your letter, that I shall not see you before we come back from Newmarkett, but then I hope I shall, and assure you my self that you shall always find me to be your most humble servant.—J.

For my Neece the Countesse of Lichfield.—J.

1683, Sept.—"Their majesties and the court returned from Winchester to Whitehall the 25th" (*Luttrell*).

[1683]
London Sep: 29:

I receved yours by your brother Grafton the day after I came to towne, and have but little newse to tell you, nor can I yett positivly say when the King gos to Newmarkett, that depending upon the affaire of the Citty Charter, which will be ended one way or other by wensday next, so that I beleve thursday will be the sonest day, but how long the stay will be there, is not knewne neither, but his Ma: must be back before the first day of the terme, which you knew is the 23. of next month, the weather is very cold for this tyme of yeare I beleve you are as sensible of it where you are as we here, and be assured I shall always be your most humble servant.—J.

For my Neece the Countesse of Lichfield.—J.

2nd October.—The aldermen and common council of London met and voted 103 against 85 for giving up the charter. So the king caused the attorney-general to enter up judgment in the quo warranto against the charter.

Sir William Pritchard was sworn Lord Mayor and had a commission in nature of a custos over the city. Peter Daniel and Samuel Dashwood were chosen sheriffs, and had their commission to hold their offices during the king's pleasure.

On the 8th the king went to Newmarket, and on the 10th the Duke of York and Prince George followed him.

[1683]
London Octo: 19:

I came yesterday from Newmarkett, from whence I had writen to you, but that Mrs: Bromley being gone into the country, I did not know how to send my letters to you, when I came hither I was in hops to have found you here, but that not being I would not faile to write to you, his Ma: is to be here to morrow, and tho his stay at Newmarkett was not as long as usual, yett there has been more horse races then I can remember at any meetting, there never having past a day, at least when I was there, with out, one and for the most part two or three, and this day there is to be seven, the weather whilst we were there was dry, but very cold, so that there was but very bad hunting, I have been so little in towne that I can tell you no newse of this place, and so for this tyme shall content my self with assuring you that you shall always find me to be your most humble servant.—J.

For my Neece the Countesse of Lichfield.—J.

1683, Oct.—"His majestie returned the 20th to Whitehall from Newmarkett." (*Luttrell*).

[1683]
London Dec: 4:

I am realy ashamed to have been so long without writing to you, and aske you pardon for it, and shall be guilty of that fault no more, at first I thought, by the letter you writ to me, before you went to see the Lady Lindsey, that so sone as you came back to Woodstock you would not have made any long stayin the country, and now of late by the D. of Monmouths being come back, I have realy had so much businesse, that I have had no tyme to my self, as for newse Colonel Algernon Sidney is to be beheaded on tower hill on friday, sure this bad weather, will drive you out of the country, I am sure you can have no divertion there, there being no sturing out of doors, and where you are one is more sensible of the cold then in towne, I shall say no more now but to assure you of my being more then ever your most humble servant.—J.

Algernon Sydney, second son of Robert Sydney, Earl of Leicester, convicted of participation in the Rye House Plot 21st November, was beheaded 7th December, 1683.

The scaffold was erected on Tower Hill at 10 a.m. "The executioner beheaded him at one blow. It is remarkable that he had no minister with him, nor any of his relations, nor did he seem in the least concerned, and made no speech on the scaffold, but gave a paper to the sheriff" (*Luttrell*).

"He was beheaded at one stroke before the Horse Guards came, who were all with ye Foot Guards ordered to encompass the scaffold, and I think the Foot Guards were but just on the hill" (*Memoirs of the Verney Family*, iv. 272).

Elizabeth Pope, Countess of Lindsey, was Lord Litchfield's mother, having married in 1671, after the death of her first husband, Sir F. H. Lee, in 1667, Robert Bertie, Earl of Lindsey, by whom she had Elizabeth, who died young, and Charles, unmarried, in 1710. She died 1st July, 1719.

George Fitzroy Duke of Northumberland was one of the Captains of King James's Horse Guards, which he quitted at the Revolution, and never had any post, though sometimes presents from the king all King William's reign. On the queen's accession to the throne he was made Constable of Windsor Castle and Lieutenant General, and had my Lord of Oxford's Regiment of Horse. He is a man of honour, nice in paying his debts and living well with his neighbours in the country; does not much care for the conversation of Men of quality or business. Is a tall black man like his father the king, about forty years old (*Macky*).

He was created Duke of Northumberland 6th April, 1683. He was elected K.G. 10th January, 1684, while in Paris with the Duchess of Cleveland.

Newmarkett Mar: 16:

I had last night yours of the 14, and by it was very sorry to find that your Nephew was dead, I see you thinke London a dull place without the Court, but I can assure you the court out of London is worse, tho the weather has been very favorable since we have been here, I having not knewne a finer season at this tyme of yeare. I never saw any thing so grewne as your brother Northumberland, and for the newse of this place your Brother Grafton will have told you all we have here so that I shall say no more but that I shall ever be your most humble servant.—J.

For my Neece the Countesse of Lichfield.—J.

This winter was the great frost with the fair on the Thames. The nephew was Charles, Lord Dacres, only son of Anne Palmer, surnamed Fitzroy, natural daughter of Charles II. by the Duchess of Cleveland, by Thomas Lennard, Earl of Sussex. Lord Dacres was born 3rd June, 1682, and died at a year and half old.

1683-4, March.—"The 1st, early in the morning, his majestie went to Newmarket, to pass some time there."

"His majestie, with the court, returned the 22d from Newmarket to Whitehall" (*Luttrell*).

The Duke of Northumberland was now 18 years of age, having been born on 28th December, 1665. The Duke of Grafton, Dryden's "Othniel," who was born 20th September, 1663, was 21 years of age. Lady Litchfield herself was 20 years of age and had had three sons and one daughter.

[1684]
Windsor Aug: 5:

I had not yours of the 29: of the last month till late the night before I went to Tunbridg, and so could not answer it till I came back from thence, I am very glad your sonne is quit recoverd for I was allarmed when I came back and heard you were gone away in such hast, the waters I thank God agree very well with the Dutchesse, she intends to leave of drinking them on saturday next, and to be that night at London, and here the next weeke I am to go to St: Jamess on monday, I beleve you in great paine for your Bro: Grafton I assure you I am so to, but hope now the worst is past, by a letter the King had this morning, from Euston, for other newse, I have none to tell you, and pray do me that justice as to beleve me your most humble servant.—J.

For my Neece the Countesse of Lichfield.—J.

[1684]
3 April

I thinke it a very reasonable thing that other houses should not looke into your house without your permission, and this note will be sufficient for Mr. Survaier to builde up your wall as high as you please and you may shew it to him, the only caution I give you, is not to preiudice the corner house which you know your sister Sussex is to have, and the building up the wall there will signifie nothing to you only inconvenience her I shall be wth you on saturday next, and so my deare charlotte I shall say no more but that I am your kinde father.—C. R.

For my L^{dy} Lichfield.

1684, July.—"Her royall highnesse the dutchesse of York went to Tunbridge to drink the waters, but they not agreeing with her, she returned in a little time." (*Luttrell*).

Euston belonged to the Earl of Arlington, and is near Newmarket.

The Duke of Grafton apparently had smallpox, as the king's letter of 15th September refers to his red face and markings.

[1684]
Winchester Aug: 28:

I intended to have answerd your of the 16: which I had at Windsor from thence, the day before I left that place, but realy I had so much businesse, that I could not do it there, and now before I could write to you from here I had the satisfaction of another from you, of the 25, which was given me just now, we came hither on the 26, this morning I went out a hawking with his Ma; and am just now a going a hare hunting with the Dutchesse, and

to morrow am to hunt the Stag neare Alsford and am likly to be but little in the house whilst we stay here, and the weather continues good, and where so ever I am and what so ever I am a doing, you may be sure I shall ever be your most humble servant.—J.

For my Neece the Countesse of Lichfield.—J.

1684, August.—"The 26th, their majesties and the whole court removed from Windsor to Winchester" (*Luttrell*).

[1684]
Winchester 5 Sep:

Your excuse for not comming hether is a very lawfull one, tho I am sorry I shall be so long deprived of seeing my deare charlotte: your brother harry is now heere and will go in a few dayes to see Holland, and by that time he returns, he will have worne out in some measure the readnesse of his face so as not to fright the most part of our Ladyes heere, his face is not changed tho he will be marked very much; I will give order for the two hundred pounds for your building and the reason that you have had it no sooner is the change I have made in the tresury which now in a little time will be settled againe, and so my deare charlotte be assured that I am your kinde father.—C. R.

For my Deare Charlotte.

Newmarkett Octo: 8: 1684.

I had yours of the 23: of last month a little before I came from London, and had not then tyme to let you know I had receved it, there has been horse races now three days together, on monday, Griffins horse, beat Barnes, yesterday L^{d}: Godolphins horse, lost all the three heats to M^{r}: Whartons gray gelding and after they were over Staply beat Roe, the long course, this day Dragon was beaten by Whynot and Stapley won another match, it was of the D: of Albemarle, tomorrow I am to go a fox hunting, and hope to have better weather then it has been since I came to this place, for it has rained every day, so that the King could not hawke neither this day nor yesterday and I never saw this place so very durty as it is now, I have given you an account of all the newse it affords, only that the D^{s}: of Portsmouth was ill of the colike yesterday but is well of it againe to day, and have no more to say, but to assure you that you shall allways find me to be your most humble servant.—J.

For my Neece the Countesse of Lichfield.—J.

Sidney, third son of Sir Francis Godolphin, was created 28th September, 1684, Baron Godolphin of Rialton, in 1704, K.G., in 1706, Viscount Rialton and Earl of

Godolphin. He married Margaret, fourth daughter and co-heiress of Colonel Thomas Blagge. His son Francis married Lady Henrietta Churchill, daughter and co-heiress of the great Duke of Marlborough.

Christopher, Duke of Albemarle, K.G., was son and heir of George Monk, first duke. He was captain of all the King's Guards of Horse 1679-1685, and died in 1688 in Jamaica, of which island he was captain-general 1686.

Dragon in 1680 belonged to Mr. Baptist May, but later on it seems to have been the property of the king, who at various times owned Woodcock, Blew Capp, Tancot, Corke, and the gelding Mouse, which in 1680 was the Duke of Monmouth's.

In 1671 and 1675 Charles won the plate, riding in the former year against Monmouth, Mr. Eliot, and Tom Thynne, who was murdered 12th February, 1682.

[1684]

S^{t} : Jamess Octo : 28 :

I did not answer yours I had of the 11 : when I was at Newmarkett, hoping to have found you in towne at my arrival here, but was very sorry I did not, and more when your Lord told me, you will not be in towne till the end of next month, but the weather is now so very cold, and the ground all coverd with snow ; that I hope it will drive you out of the country, soner than you intended to leave it, for now there is nothing to be done without doors, I was a hind hunting on Monday but the snow beat us of after I had run two hours, and I intended to have hunted againe to morrow but the snow is not gone and it freeses so hard there is no doing of it. At last the two combatants that had such long swords at Windsor this sommer I meane Prince Phillip, and Bannier have faught, the last is run into the thy, but I do not heare he is in any danger, The D^{s} : of Ports : is in a faire way of recovery, and so is Lady Churchill, I have not tyme to say any more but that you shall always find me to be your most humble servant.—J.

I have been just now told that Bannier is dead, which made me open my letter to tell it you.—J.

Baron de Bannier was killed by Philip, brother of the famous Prince Eugene of Savoy. Bannier was a Swede, and son of General John Bannier, one of Gustavus Adolphus's generals.

1684.—Lady Churchill was daughter of Sir William Drake, bart., and wife of Sir Winstan Churchill of Wotton Bassett. Her son John, afterward Duke of

Marlborough, "came first to Court by the favour of the Duke of York." Her daughter Arabella was by James Duke of York the mother of James FitzJames, Duke of Berwick, the victor of Almanza, Henry FitzJames, "The Grand Prior," Henrietta, wife of Sir Henry Waldegrave, bart., and another daughter who became a nun.

Windsor 11 Aug:

I receaved yours my deare Charlotte just now, concerning the desire you make aboute Mrs Youngs reversion, but I was engaged in that matter some dayes since, so as I can only tell you that I am very glad to heare that I shall see you, and tis the greater satisfaction to me, because I did not expect it so soone, and be assured that I am as kind to you as you can expect from your kinde father.—CHARLES R.

For my Lady Lichfielde.

VI.—*On the Destroyed Church of St. Michael Wood Street, in the City of London, with some Notes on the Church of St. Michael Bassishaw.* *By* Philip Norman, *Esq., Treasurer.*

Read 13th February, 1902.

From the artistic and antiquarian points of view, the systematic destruction of our old City churches under the Union of Benefices Act is greatly to be deplored. Under this Act the churches designed by Sir Christopher Wren have especially suffered; and here I will venture to say a few words on that famous architect and his work. A dire catastrophe sometimes calls forth the energies of the master mind that can grapple with it; this was the case, when, after the Great Fire of 1666, by which eighty-six parish churches were destroyed or severely injured, Wren at that time, hardly a professional architect, turned his attention to the City. He first produced a plan for general rebuilding, which would have given free scope to his genius, although at the same time destroying many links with the past. The chief public buildings were to have been grouped round the Royal Exchange, which would have formed an important centre; St. Paul's Cathedral being approached from the east by two broad converging streets. A river quay, in part adorned by the City Halls, would have extended from Blackfriars to the Tower of London; while the churches, greatly reduced in number, were to occupy commanding and isolated sites, their burial grounds being outside the City. For reasons which it is here not necessary to discuss, this proposal was not accepted; and so the City grew again, more or less on its old irregular lines. To Wren, however, was assigned the task of rebuilding or repairing not only St. Paul's Cathedral, but, if we include St. Mary Woolnoth and St. Sepulchre, both only repaired, no fewer than fifty-two other churches,

The remainder were not rebuilt, their parishes being united with adjoining parishes which continued to possess churches. The ancient burial grounds were, to a great extent, retained, and burials continued in them until after the middle of the nineteenth century.

In carrying out the stupendous work of rebuilding, Wren was cramped and thwarted by many difficulties, not the least of these being a want of funds; for although on a few important churches, notably on St. Mary-le-Bow, St. Bride's Fleet Street, Christ Church Newgate Street, and St. Lawrence Jewry, considerable sums were spent; as a rule he was compelled to practise strict economy. It was no doubt partly on this account that wherever the charred walls or merely the foundations of a mediæval church remained in a solid condition they were worked into his building. The ground plans of Wren's churches are often, I might say usually, a good deal out of the square. In such cases he may now and then be merely accommodating himself to the street line, thus including as much as possible within the prescribed area; but as a rule he is utilising old foundations, for whereas it would be in the spirit of Renaissance architecture to plan with something approaching to mathematical accuracy, in Gothic work little attention was paid to the laying out of exact parallelograms.

For something like a century all Wren's City churches remained more or less intact, if I except St. Mary Woolnoth, which was rebuilt by Nicholas Hawksmoor in 1716, its repair having proved a failure. The first to go was St. Christopher-le-Stocks, taken down when the Bank of England was enlarged in 1781. This was followed by St. Michael Crooked Lane, destroyed to make room for the approaches of the present London Bridge. St. Bartholomew by the Exchange was replaced by the Sun Fire Office in 1841, and soon afterwards St. Benet Fink disappeared on the rebuilding of the Royal Exchange. But it was the Union of City Benefices Act, passed in 1858 and 1859 (23 & 24 Vict. c. cxlii.), which has facilitated the destruction of the churches designed by Sir Christopher. Seventeen have now succumbed, only thirty-three remaining, and one of these, St. George Botolph Lane, is condemned, while many are more or less threatened. I deplore from my heart this wholesale vandalism, but, while Wren's work is thus perishing before our eyes, we have the small grain of consolation, that we learn much, not only of his methods of construction, but of the mediæval buildings, parts of which he so often incorporated in his own. A case in point is that of the City church which forms the main subject of this Paper.

The church of St. Michael Wood Street, built, or rather very much repaired and remodelled, by Sir Christopher in 1675, at a cost of only a little over £2,550,

was destroyed under the Union of Benefices Act in 1897, and the parish, together with the associated parish of St. Mary Staining, united with that of St. Alban Wood Street.

St. Michael's stood on the west side of Wood Street, near the south side of Gresham Street, in that part formerly called Maiden Lane, and along the north side of Huggin Lane. I will first briefly describe it as restored after the Great Fire. It was one of Wren's cheapest churches, and also one of the simplest. Externally, the east end was the most conspicuous portion, for Huggin Lane on

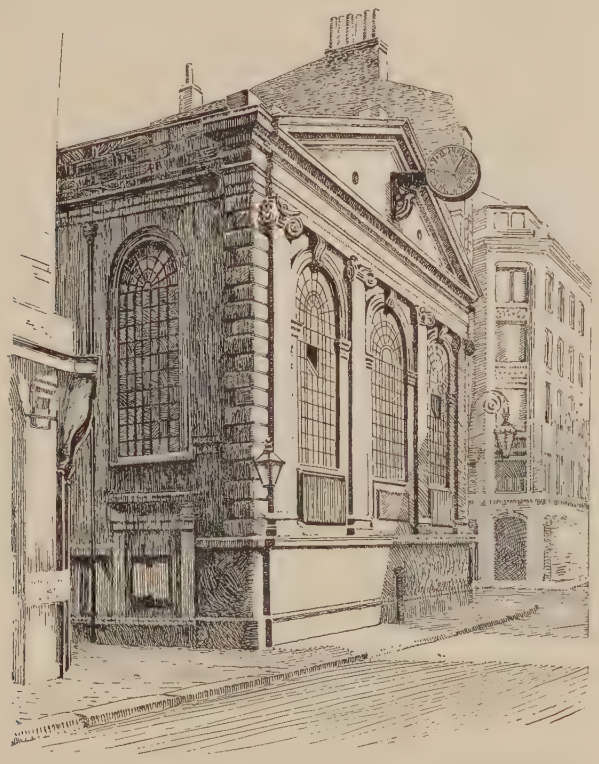


Fig. 1. Church of St. Michael Wood Street. From a water-colour drawing by P. Norman, 1896.

the south was very narrow, and since the Fire the north and west had always been masked by buildings. This east front was faced with Portland stone, and decorated by four Ionic pilasters carrying a cornice and pediment; between them were three round-headed windows (fig. 1). The clock, which jutted out into the street, was a modern addition, placed there after Billings had made a drawing of the east end of the structure for Godwin and Britton's *Churches of London*, published in 1838.

The tower, as Wren partly rebuilt it, was surmounted by a lantern, which is well depicted in an illustration to Maitland's *History of London* (edition 1756) (fig. 2). About a century ago this was replaced by a dull looking octagonal spire, rising to a height of 130 feet, which of late years was always ignorantly attributed to Wren. Hughson, writing in 1806, says that it had been added during "a late repair." The interior of St. Michael's church was very plain, being more or less an un-

Fig 2. Church of St. Michael Wood Street, with tower as finished by Wren. From Maitland's *History of London*, ed. 1756.

broken parallelogram, though not absolutely so, as the two side walls widened out towards the east end, which was not quite square with them; the tower also, occupying the south-west corner, projected slightly at the west end, and its ground stage was blocked up so as to form an apartment used as a vestry. The

ceiling of the nave, if we may so term it, was flat in the centre, having an ornamental border. Beyond this the sides were coved to the north and south walls only. The beautiful fittings had been wrecked in 1887-88 by men who entirely ignored the fact that they were an integral part of Wren's design. The high pews had been replaced by varnished yellow deal seats, and chancel benches of similar material with pseudo-Gothic poppy-heads; brazen gas-standards to match were also then provided. A handsome wrought-iron sword-rest was sold to the Worshipful Company of Haberdashers, in whose possession it remains. The organ, deprived of its carved wooden case and of the winged figures which once adorned it, was stencilled over with a diaper pattern utterly inappropriate. The carved lion and unicorn, sometimes used by Wren to mark the division between nave and chancel, but now more often found on the pew appropriated to the Lord Mayor, were banished to the vestry. The sounding board of the pulpit had already disappeared. In short, at the time of its destruction one could hardly plead that the church of St. Michael Wood Street was beautiful; its interest lay largely in old associations, and in what we have been able to learn from it of mediæval London churches and of Sir Christopher Wren's operations as an architect.

We will now consider the Gothic building which had stood upon this site. There were once seven churches in the City dedicated in honour of St. Michael, who was regarded peculiarly as the patron saint of the Church militant. Of these only two now exist, namely St. Michael Cornhill and St. Michael Paternoster Royal. The earliest reference, known at present, to the church in Wood Street dedicated in honour of that saint, is contained in the will of Geoffrey de Ambresbure, goldsmith, proved and enrolled in the Court of Husting, and calendared by Dr. Sharpe under the date 1272-3, whereby the said Geoffrey assigns houses gardens and rents, in the parishes of St. Giles without Cripplegate and St. Michael de Wode Street, for the purpose of founding a chantry, the said rents to be collected by the wardens of the Fraternity of St. Dunstan, from which it has been said that the present Goldsmiths' Company is in some sense descended. The first rector whose name appears in Newcourt's list, but without date, is John de Eppewell; he was followed by William de Brampton, presented in the year 1328. In all probability, however, the foundation of the church was very much earlier. In his Paper on the growth of English parish churches [a] Mr. J. T. Micklethwaite, F.S.A., has expressed the belief that in our large towns there were few parish churches whose sites had not been already occupied in the Saxon period, and he points out

[a] *Archaeological Journal*, xxxvii. 364-377.

that the early date of the division into parishes is shown by the state of our old commercial towns. Those which, like London, York, and Norwich, came from Roman times, have many parishes each with its own church, often of small size. Some of the City dedications indicate very great antiquity. I assume, however, that dedications in honour of St. Michael are, as a rule, later than the Conquest; extending as they did from Normandy, where on account of his supposed appearance to St. Aubert, bishop of Avranches, a church had been erected in his honour on what is now called Mont St. Michel, which became a popular place of resort for pilgrims. But, whatever the date of the original church of St. Michael Wood Street, the first documentary evidence forthcoming, which helps us to a knowledge of the mediæval structure, belongs to the latter part of the fourteenth century.

In 6th Richard II., 1382, Robert Lucas, goldsmith, made a will, proved the same year, and enrolled in the Court of Husting, in which he left to his wife Margaret a life interest in his dwelling house in "Hoggen-lane," remainder in trust for sale for pious uses, for the good of his soul and the souls of Isabella his former wife and others.

In the year that this will was drawn up and proved, the widow executed a deed, given in the Appendix, of which the following is a translation:

Know all men that we, Margaret widow of Robert Lucas late citizen and goldsmith, and John Ive rector of the church of St. Michael of Wodestret, executors of the will of the said Robert, by virtue and authority of the said will, and for a sum of money paid to us, have sold to John Curraunt and to John Forster, citizens and goldsmiths, a certain piece of land below the former tenement of the said Robert, next the church of St. Michael, on which place the vestry (or vestibule[a]) of the said church of St. Michael is now situated; which place contains in breadth two yards and a quarter between the church of St. Michael on the south and the hall of the house of the late Robert on the north, and contains in length five yards between the highway of Wodestret on the east and the said house on the west, and in height from the ground to beneath the solar of the said house three yards and a quarter. The before named John Curraunt and John Forster, their heirs and assigns, to have and to hold all the said place of the chief lords of that fee by services therefore due and of right accustomed for ever. In testimony of which fact we have placed our seals to this document. The witnesses thereof being Adam Bamme, Thomas Carleton, Robert Ashcombe, Robert Bright and others. Executed in London on the ninth day of January in the sixth year of the reign of King Richard the Second after the Conquest of England.

[a] Latin *vestiarium*.

Of the above named witnesses, Adam Bamme was sheriff in the year 1382 and mayor in 1390. Henry Bamme, no doubt his near relation, married Margaret, the widow and executrix of Robert Lucas, as appears from deeds enrolled in the Court of Husting, which relate to tenements or a tenement in this parish. John Curraunt and John Forster, both goldsmiths, were evidently intimate friends, for in the will of the latter, dated 6 May, 1406, he leaves certain rent charges to his god-daughter, Joan, daughter of John Curraunt.

In 1388-89 the said John Curraunt or Coraunt executed a will, enrolled at the Court of Husting, in which, after directing that he was to be buried in the church of St. Michael Wood Street, he made bequests to "Sir John Yve,"[a] rector, and to the churchwardens of the same for torches for the high altar, etc. and a devise of the vestry or vestibule built on the north side of the church, which he had lately acquired from the executors of Robert Lucas, goldsmith. To Joan his wife he left all his tenements in the City of London for life, to his son William the reversion of certain shops in the parish of St. Michael, and to his son John the reversion of his dwelling house in the same parish.

More important as regards the fabric are later documents, to which we will now make the following brief reference.

In 1407 Edward Pychard Esquire and Agnes his wife, who had been the wife of John de Worstede late citizen and mercer, let to John Heed citizen and timbermonger, for the life of the said Agnes,

three mansions with solars above and the rest of their appurtenances, situated in Hogen Lane and the parish of St. Michael Wood Street, between the church of St. Michael aforesaid on the east side and the tenement of William Burden goldsmith on the west side, and between Hogen Lane above named on the south side and the ground of the church of St. Michael on the north side, from the Feast of the Lords' birth in the eighth year of the reign of King Henry the fourth, for the payment of twenty six shillings and eight pence sterling at the four principal and usual terms of the City of London in equal portions.

[a] Among deeds in the Court of Husting relating to this parish the name of John Ive or Sir John Ive, rector, frequently appears; from one of them we learn that in 16 Richard II., 1392, John Forster, Robert Buste, and Peter Fikylden handed over to him various messuages for the repair of the church and chancel, and other works of charity, a gift referred to by Stow and Newcourt. There is also reference to this gift on a silver gilt tankard belonging to the parish and now at St. Alban's Wood Street, which has on it the date mark of 1741 and a maker's mark J. F., and is inscribed as follows: "This piece of plate was puchased by the inhabitants of S. Michael Hogan Lane, London, March 1741 out of the estate left them by the Rev^{d} John Ive, John Forster, goldsmith and Peter Fikeldon taylor in y^{e} year 1350." It may be observed that the inscription is inaccurate in more than one particular.

A copy of this indenture is in the Appendix; the original is in the Guildhall Library. I have to thank the authorities there for calling my attention to it.

In the year 1422 a deed was executed, which no doubt referred to part of this property. By it Agnes, widow of Edward Pychard and formerly wife of John Worstede, mercer, together with John Worstede, son of the said John, disposed of a house in "Hoggenlane" to John Broun, saddler. It is described in the deed as

> All that tenement with its appurtenances, which is situated in the parish of St. Michael, between the church of St. Michael on the east and the house of John Biernes and of Benedicta his wife on the west, and the house pertaining to the rector of the said church and the burial ground on the north, and the lane called Hoggen-lane on the south.

An extract from the original is given in the Appendix.

A few months afterwards John Broun made his will, which was not proved until 1429-30, and of which the following is a translated epitome:

> In the name of God, Amen. On the 18th day of October in the year of our Lord 1422, in the first year of King Henry VI., I John Broun, citizen and saddler, being of sound mind and good memory, thus dispose by will of my lands and tenements in London and their appurtenances. I commend my soul to Almighty God, and I wish my body to be buried in the great churchyard of St. Paul's Cathedral before the cross, where beneath a marble slab lie the bodies of my late wife Katherine and of my son Henry. Item, I leave to Master Robert Fitzhugh rector of the church of St. Michael in Hoggenlane and to the custodians of the goods and work of this church, and to four parishioners of this church for the time being, all that vacant piece of ground with its appurtenances belonging to me, in the parish of St. Michael, between the said church of St. Michael on the east, and the house of John Biernes goldsmith, and of Benedicta his wife on the west side, and the house of the rector and the burial ground of the said church on the north side, and the lane called Hoggenlane on the south side; on which piece of vacant ground stood *a house lately acquired by me from Agnes Pychard and others, which was then lately built, and which I have of late totally destroyed for the purposes of the enlargement of the said church towards the west and the adding of a belfry.* Further, as a contribution towards the cost of the said enlargement I leave the sum of ten pounds sterling and the sixteen pounds which Thomas Lovell gentleman owes me.

A copy of the original document is also given in the Appendix.

In the Calendar of Wills enrolled at the Court of Husting we have reference at various times to the foundation of eight chantries in the church of St. Michael, the earliest in 1289 and the latest in 1449. The following two chapels are mentioned:

In the year 1368 Thomas Welforde jun. wills to be buried in the chapel

of the Blessed Mary in this church; and in 1422 William Turnell "wexchaundler" wills to be buried in the chapel of St. John de Bridlyngton.[a] He also leaves to Master Robert FitzHugh the rector, the churchwardens and parishioners, two shops at the corner of Hogginlane on condition that they keep the same in good repair and maintain a lamp burning day and night before the high cross in the said church.

Stow, in 1598, after discussing the question whether Wood Street was so called because the houses in it were built of wood, or from "the name of some builder or owner thereof," describes the church as "a proper thing lately well repaired," and in Strype's edition of *Stow*, we are told that it was repaired and beautified in 1620, at the charge of the parishioners. The illustration from Agas's Plan of London (fig. 3), drawn towards the end of the sixteenth century, cannot

Fig. 3. Churches of St. Michael Wood Street and St. Mary Staining. From Agas's Plan of London.

be considered accurate as regards the details of the church. Still, no doubt, it shows the character of it more or less, and it is besides of interest from the facts it tells us about the immediate neighbourhood. We have seen that in 1422 there was a rectory and burial ground immediately to the north; although in 1693, as appears in Newcourt's *Repertorium*,[b] the churchwardens affirmed that there was no parsonage before the Fire nor glebe that ever they heard of.

Turning now to a consideration of the mediæval remains which existed until the final destruction of the church in 1897-98. Portions of these remains had always

[a] St. John of Bridlington was a canon of the Austin Priory of Bridlington in Yorkshire; he became Prior there, died in 1379, and was canonised.

[b] Vol i. 496.

been more or less apparent. Thus a water-colour elevation done after the completion of the modern spire, and here reproduced (fig. 4), shows a pointed window with fifteenth century tracery on the south side of the tower, latterly blocked up as to the upper part, while the lower portion was converted into what looked like an ordinary square window, serving to light the vestry, a panelled apartment

Fig. 4. Church of St. Michael Wood Street. From a water-colour drawing by of early nineteenth century date.

which, as we have seen, occupied the ground floor of the tower. Again, the top of the pointed north tower-arch was visible from the gallery in the tower above the vestry and there was a little turret staircase at the north-west angle of the tower, entered from the nave through a Reigate-stone doorway with fifteenth century mouldings (fig. 5). On passing through this doorway and ascending by the

C. F. Kell & Son, Photo-Print.

TOWER ARCHES OF THE DESTROYED CHURCH OF ST. MICHAEL, WOOD STREET, LONDON.

Published by the Society of Antiquaries of London, 1902.

spiral staircase one found that the mediæval masonry ended within three or four feet of the belfry floor level,[a] and the building was carried up in brick, evidently Wren's addition after the Fire. In his brick superstructure he had placed pointed windows, perhaps rough imitations of those which had existed before. The mediæval or lower part of the staircase had been lighted by three little quatrefoil windows opening into the church. They still remained, but were blocked up.

When the building was being pulled down it was seen that the lower portion

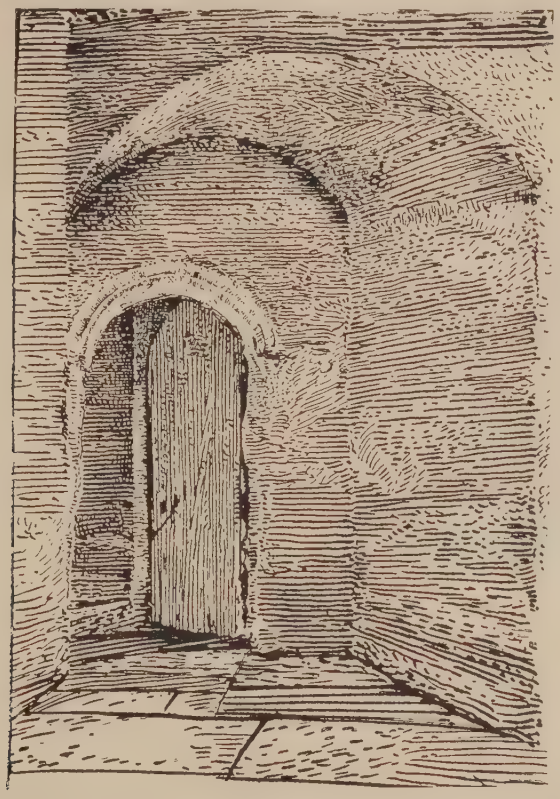


Fig. 5. Church of St. Michael Wood Street. Doorway to turret staircase. From a drawing by A. Powell.

of the tower was wholly Gothic. The most perfect piece was the engaged arch on the western side of the tower, which forms a conspicuous object in the accompanying illustration (Plate XIII.) from a photograph kindly contributed by our late Treasurer, Dr. Edwin Freshfield. Here also are shown the north and south arches

[a] There were two bells. The smaller one, which appeared ancient, had no inscription; diameter at the mouth 27 inches. The other was made by Thomas Mears & Son, 1806. In 1708 there were four bells in the tower.

of the tower; the latter containing the square vestry window which filled the lower part of the space previously occupied by the Gothic window. To the west of the northern arch are the quatrefoil openings of the turret staircase. The eastern tower arch appears, as far as one can judge, to have been entirely blocked by Wren, but in 1831 the upper part of the wall was opened into the church, and a small gallery formed over the vestry, a round-headed arch being inserted. It was, perhaps, not until then that the old arch was destroyed, except just enough of it to show its former existence. As can be seen by their general character, and by their mouldings, these Gothic remains were of the early fifteenth century; thus they coincide with the documentary evidence of the date of building of the tower. Much of Wren's south and east walls were formed of re-used stones from the old church. There was ancient masonry at the east end of the north wall up to 2 feet or 3 feet above the wainscotting, which was, I think, about 8 feet high. Embedded in the south wall near the tower, among other fragments not in their original positions, was an oblong piece of stone of considerable size with three quatrefoil openings, now in the Guildhall Museum; the use to which it had been put is, I think, doubtful, it may have belonged to a gallery; but others can form their own opinions from the accompanying view of it (fig. 6). The portions of the walling, not of old material, which dated from Wren's time, were of brick. The foundations of the church seemed to be generally mediæval.

Fig. 6. Moulded stonework from the church of St. Michael Wood Street, London. Now in the Guildhall Museum.

Some encaustic tiles, the majority of which are now in the Guildhall Museum, were found beneath the floor level. They appear to date from the fifteenth century. At the base of the tower were many fragments of coloured glass and of the lead-work in which it was fitted. These belong to the fourteenth century; neither glass nor lead appears to be injured by fire. One of the quarries, part of an ornamental border, has on it the leopard of England; Mr. W. H. St. John Hope has one precisely similar, dug up at Watton Priory, Yorkshire.

On the excavation of the ground within the walls, one found, as is invariably the case in old city churches, that the number of burials there had been enormous;

much of the soil had been dug up to make room for brick vaults. About 15 feet from the north wall and about 20 feet from the east end and 6 feet below the surface there was a stone coffin lying east and west. It seemed of a plain character and I could see no inscription, but it was a good deal injured; there was a cavity at one end to fit the head. Perhaps it is now in the Guildhall Museum, but unfortunately as yet no printed catalogue of the objects contained there is forthcoming. Nearer the south wall, at about the same distance from the east end, I was told that there was a foundation of chalk or clunch at a

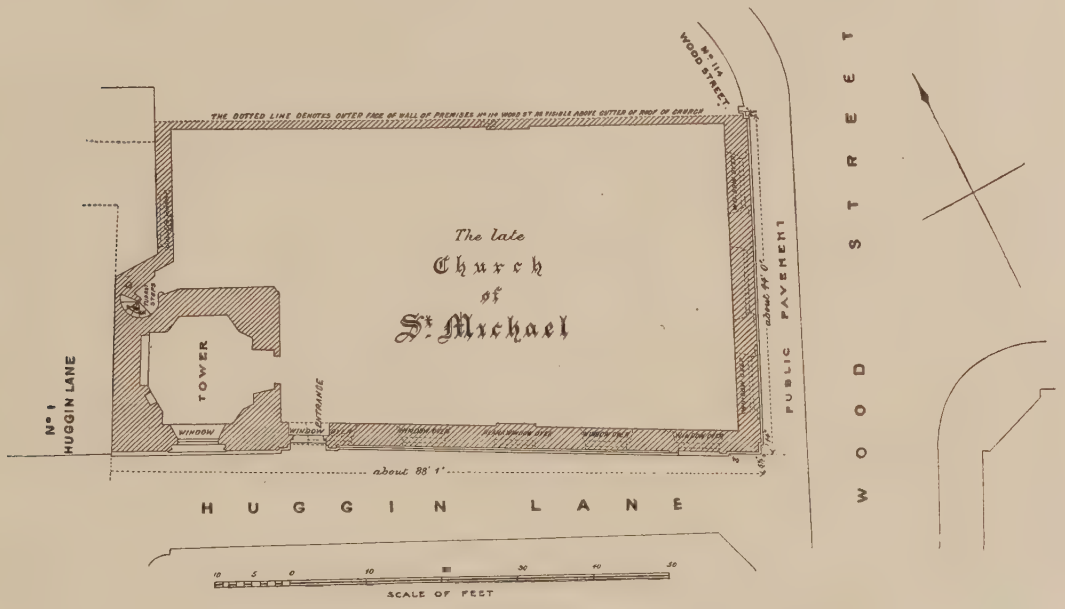


Fig. 7. Plan of the church of St. Michael Wood Street, London.

similar level. But by far the most important foundations were those of the tower, also of soft white stone, which were from five to six feet thick and went down about twelve feet. There was also an irregular piece of foundation in the nave not quite as far west as the tower, and about half way between it and the north wall.

Let us consider what lesson can be learnt from these remains and from the documentary evidence. Apart from the fact that, as we have seen, the foundations before the Great Fire were apparently the same as those of Wren's church, it is unlikely that it ever extended further south, as Huggin Lane is still quite a narrow passage. The same remark applies with less certainty to the east end,

which was always limited by Wood Street, although that thoroughfare in quite early times may have been much narrower. The foundations of the north side were partly at least mediæval. At the west end we have also old foundations, and there is the evidence of John Broun's will, drawn up in 1422, which gives the approximate date of the building of the church tower, and of the lengthening of the church at the west end. Until that date it may only have extended as far as the remains of the old foundations towards the west already mentioned.

The ground plan of the church immediately before the Fire was, I believe, identical with that of Wren's church, although there may have been some subsidiary building on the north side, for we know that John Coraunt's vestibule was here in the fourteenth century. On looking at a copy of the ground plan made for the sale by auction on 21st July, 1897 [a] (fig. 7), it is clear that St. Michael's followed the usual lines of a City church of secondary importance, which, as was the case elsewhere, had completed its architectural development in the fifteenth century; a nave having a square east end, with no chancel arch, but with one aisle extending as far east as the nave, and a tower at the south-west angle, its arches opening into the nave and aisle. It may be presumed that the aisle was on the south side, and that it was of the same breadth as the tower which opened into it. In that case it would have had four bays.[b]

Two facts appear at first sight to throw doubts on the suggestion, but they can both be explained. Strype in his edition of Stow, after mentioning the repair of this church in 1620, goes on to say that "in the year 1627 the parishioners made a new door—through the head of the north isle, being the chancel end, into Wood Street; where till then it had only one door in the middle of the south aisle, standing in Huggin Lane." This may be thought to imply a nave and two aisles, but I believe that Strype merely refers to an arbitrary division into alleys or passages, as Hatton must have done in his *New View of London* (1708), when, in writing of Wren's church, he mentions three aisles, although structurally it was without aisles. The second difficulty is that on digging up the soil within the area of the church no bases or foundations of pillars were found, marking the division of the aisle from the nave. To this I reply that they had disappeared either at Wren's rebuilding or subsequently, that the shape of the church, while

[a] The church and freehold were sold by auction by Messrs. Fox & Bousfield at the Mart, Tokenhouse Yard, by order of the Ecclesiastical Commissioners. The estate, containing an area of 3,700 superficial feet, realized £31,500.

[b] With Mr. W. R. Lethaby I studied the church of St. Michael Wood Street while in course of demolition, and I thank him for his valuable help.

too square for a nave without aisles, would not admit of more than one aisle, and the position of the tower indicates that it was on the south side.

If the conclusion arrived at be correct, the arrangement of St. Michael's Wood Street, with nave aisle and tower, was very similar to that of St. Martin's Outwich, which escaped the Great Fire; but, after suffering great damage from the Cornhill Fire of 1765, was taken down in 1796. Previous to its destruction an account of it, with a ground plan, was written by Wilkinson, who afterwards published *Londina Illustrata.* The total length of St. Martin's Outwich was 66 feet, breadth 33 feet, and it was divided into a nave and a south aisle with tower at the south-west angle. The external length of St. Michael's from the east end to the west side of the tower was 88 feet, and the breadth about 44 feet, and it seems to have had one more bay.

More than one of Wren's existing churches has a nave and one aisle with tower at the west end; St. Margaret Pattens, for instance, and St. Laurence Jewry. The former has a north aisle with tower at the north-west angle, while Allhallows the Great, now destroyed, was a parallelogram with a north aisle broken in the centre by a tower. Of simple apartments without aisles there are several examples. That curious church, St. Catherine Cree, completed in 1630, has at the end of the south aisle the lower stage of a tower built in 1504, and completely independent of the aisle arcade.

It may be of interest to note that, besides St. Catherine Cree, the following City churches have western towers which in part at least are mediæval, the buildings being otherwise of later date; of course they are as a rule very much "restored:" St. Andrew Holborn, St. Ann and St. Agnes Aldersgate, St. Bartholomew-the-Less, St. Mary Aldermary, St. Sepulchre (which has also a beautiful south porch of the fifteenth century), and St. Alphege London Wall. The Gothic fragment in the last named church formed the base of the church tower of Elsing Hospital, which was dedicated in honour of St. Mary. The Gothic tower of Allhallows Staining remains, but the more modern body of the church has been destroyed.

Soon after the destruction of St. Michael Wood Street, Wren's church of St. Michael Bassishaw was also pulled down (fig. 8). As had been anticipated, the lower part of the tower at the west end of the nave was found to date from the end of the fifteenth century, and it had against its west side a holy water stoup of late Gothic design. There were rudely arched stone foundations under the south aisle. At the east end of the south aisle was the arched entrance to the vault of Sir John Gresham, Lord Mayor in 1547-48, who died in 1554. He was brother of Sir

Richard, uncle of Sir Thomas, and ancestor of the Leveson-Gowers of Titsey. No vault remained on either side of this archway. Inside the church, traces of at least two buried floor levels came to light, with fine encaustic tiles *in situ*. These are mostly, I believe, in the Guildhall Museum; among them is one with that design so common on encaustic tiles, the arms of Clare. A tile with the same design, from St. Matthew's Friday Street is figured in the *Proceedings of the London and Middlesex Archæological Society*.[a] Under the church, resting on the original soil, were a few fragments of Roman pottery. An interesting paper on the subject of the discoveries at St. Michael Bassishaw was recently communicated to the London and Middlesex Archæological Society by Mr. F. C. Eeles, who also very kindly copied out for me the inventories of the church plate and valuables at St. Michael Wood Street and St. Michael Bassishaw, taken in the reign of King Edward VI.; the former is printed in the Appendix. A communion cup of this reign belongs to the parish of St. Michael Wood Street.

Fig. 8. Church of St. Michael Bassishaw.
From a water-colour drawing by P. Norman, 1899.

Before closing this Paper I will venture to make a few remarks on subsidiary matters connected with the church and parish of St. Michael Wood Street. Anxious to get all the information possible about Wren's rebuilding I looked up the churchwardens' accounts, now in the Guildhall Library, but found that there was a gap in them at the time of the Great Fire, and that very little was said about the actual structure. Various entries suggest that for some years a good deal of the old church was left standing. Thus in 1669-70 there is an item of 1s. 8d. "for mending the church doore and key thereof." The same year a meeting took

[a] Vol. iii. 381.

place to discuss the question of joining the parish with that of St. John Zachary, but this project was abandoned, the parish of St. John Zachary being united with that of St. Anne and St. Agnes, while the neighbouring parish of St. Mary Staining was associated with St. Michael's. Shortly afterwards there was a meeting at the famous "Swan with Two Necks" in Lad Lane, on the site of which is Messrs. Chaplin and Horne's receiving office. In 1670-71 a considerable quantity of stone, lead, and rubbish of various kinds was sold. The sum of 10s. 6d. was spent, probably on liquid refreshment, when "Esquire Harvey" presented the parish with £100. In 1671 there was the considerable payment of £15 15s. "for a dinner for Dr. Wren and other charges," and in 1679 a similar sum was ordered "to be paid to Sir Christopher Wren for building the Church."

With regard to the monuments. There was here one of the many memorial inscriptions to Queen Elizabeth. Stow mentions among others a monument to the father of his friend William Lambarde, the historian of Kent, whose descendants still flourish in the neighbourhood of Sevenoaks. This disappeared in the Great Fire. In the sixteenth and seventeenth centuries an important family here was that of the Harveys. Against the north wall of the church, not far from the east end, but attached to brick and not to the mediæval portion, was a good marble tablet, saved from the old church, to "William Harvie, citizen and grocer of London and deputy to the alderman of the ward of Cripplegate within, buried 20th March 1597, aged 68 years." He had three wives. His eldest son, Robert Harvey, some time comptroller of the customs, who resided in Old Jewry, was buried here 9th November, 1608, and is duly noticed on the tablet. Close to it on the same wall was another monument, to the memory of William Harvey, son of Robert, who "fined for Alderman," and died in 1677. This was the gentleman who gave £100 towards the rebuilding of the church, about which sum there was a dispute with the neighbouring parish of St. Mary Staining. Hugh Harvey, of the fourth generation, was also buried here. The Harvey monuments were moved to the church of St. Alban Wood Street, to which parish this was united. There, already, was a monument to Benjamin Harvey, Esq., "major to the Yellow Regiment of the Trained Bands," who died in 1684; by his last will he gave the white marble font at St. Alban's. Perhaps some reference should here be made to Stow's oft-repeated anecdote that the embalmed head of James IV. of Scotland, slain at Flodden, after being with the body for years at Shene Monastery was "hewn off" by workmen "for their foolish pleasure," and eventually buried at St. Michael's Wood Street. We cannot test the truth of this; perhaps it is needless to say that after the destruction, when the whole of the site was dug up to a depth of many feet, no such head came to light.

Thanks to Dr. Reginald Sharpe and the City authorities an admirable calendar has been printed of the wills enrolled at the Court of Husting. There are, however, similarly enrolled, a vast number of deeds, which at present are only calendared in manuscript by the same skilful hand. Of these, many relate to the parish of St. Michael Wood Street; I have already quoted from one or two and will briefly refer to a few others.

In 26 Edward I., 1298, a deed between Thomas de Morthon and Joan his wife, on the one part, and Nicholas de Halleweford and Alice his wife, on the other, relates to a tenement called "Stonhus" in Englone Lane, afterwards Maiden Lane and now Gresham Street West, an indication of the rarity of such structures.

In 7 Richard II., 1384, there is a quit claim of a tenement called "le Blakehalle" in this parish, and in 1389 it is again mentioned, also in 1410, when it is conveyed to William Sevenoke and others. William Sevenoke was mayor in 1418.

In 1416 John Norman's name appears in a deed. Perhaps John Norman, sheriff in 1443 and mayor in 1453, was a descendant of his.

Attached to a deed of 1435, as also to the important will of John Broun, given in our appendix, appears the name of John Carpenter, common clerk of the City, an intimate friend of Richard Whittington. He was the man to whom we owe the famous compilation entitled *Liber Albus*, and he left estates in the City for educational purposes. From this benefaction the school called the City of London School was endowed, its first building on the site of Honey Lane Market being opened in 1837. Among the men of mark who have been educated at this school are H. H. Asquith and C. T. Ritchie, one a former, the other a present Cabinet Minister. In 1883 the school was removed to the Thames Embankment.

From three documents of the year 1495 it appears that Sir William Boleyn, knight, owned property in this parish. He was of Blickling, Norfolk, son of Sir Geoffrey, Lord Mayor in 1463, and grandfather of Queen Anne Boleyn.

A name interesting to Etonians is that of Benedict Brocas, gentleman, which occurs in a deed of 1510. He must have belonged to the family holding the hereditary mastership of the Royal Buckhounds, which is remembered by the open space called the Brocas with its "Brocas Clump," overlooking the Thames at Eton. To them considerable portions of Windsor and Eton once belonged.

In a deed of 1545 mention is made of a tenement called "le Spleyde Egle." This house is also named in the will of Richard Feild, stationer, 1624.

In these Husting deeds there are quaint names of trades and occupations. We have already had "timbermonger." In 1364 Robert Payn is described as a

"fuster," said to be equivalent to joiner. John Rowne, "coffrer," is mentioned in 1455, John Mathewe, "valet of the King's chamber," in 1505; William Hore de Southwark, "mynstrell," in 4 and 5 Philip and Mary; and in 1562 Thomas Morgan, youngest son of Morgan Philipp, alias Morgan Wolfe, "late goldsmith and late one of the sewers of the King's chamber," has his name attached to a deed. Another odd office is that of Henry Deacon, "serjeant of the Queen's plumbers," which occurs in 1569. Of course there are many goldsmiths, Goldsmiths' Hall and the goldsmiths' quarter being in this neighbourhood.

Stow thinks that Huggin Lane was called after one Hugan, and Mr. Joseph Jacobs, in a paper on the London Jewry at the time of the expulsion of the Jews in 1290, advances the theory that it is named after the important Jewish family of Hagin, of whom he gives a pedigree. He places their house in Wood Street opposite St. Michael's Church, and says that they owned a great deal of property hereabouts. However, in a deed of 1362, Huggin Lane is called simply Hogge Lane. In various documents of rather later time, Lad Lane, now incorporated in Gresham Street, is called Ladel Lane. This perhaps shows the derivation, from its shape, and would be a name of similar character to Bow Lane and Crooked Lane.

The rectory of St. Michael Wood Street was before the Dissolution in the gift of the Abbots of St. Albans. In the reign of Queen Elizabeth the advowson passed into the hands of trustees on behalf of the parish. Until the confiscation of City Parish Estates, which took place not many years ago, the parish possessed several houses near the church; Mr. F. Hollingworth, an authority on this subject, thinks that one of them stood on the site of the Rectory. Property in Wood Street which had belonged to the parish, I believe since the earlier part of the fifteenth century, has been absorbed into the premises of Messrs. J. and R. Morley, where the great hosiery business is carried on to which Samuel Morley, the politician, belonged.

Perhaps it is worth while to record that a large and handsome beadle's staff, formerly at this church and now at St. Alban's Wood Street, is surmounted by a figure of St. Michael, and has the date 1744, the names of the then churchwardens, and the motto, *Deum time Regem honora.* These beadles' staves, as Mr. E. H. Freshfield has pointed out, were in a sense the outward signs of the authority exercised over the parish by the local officers, in the same way that the maces of the Lord Mayor were the outward sign of the Corporation. Staves were borne by the parochial authorities at least as early as the reign of Queen Elizabeth; but the earliest now existing in the City appears to be one at St. Sepulchre's with the date 1677.

APPENDIX.

Deed of 6th Richard II. 1382; Husting Roll, 111 (101).

Sciant presentes et futuri quod nos Margareta que fui uxor Roberti Lucas nuper civis aurifabri Londoñ et Johannes Ive Rector ecclesie Sancti Michaelis de Wodestret Londoñ executores testamenti predicti Roberti virtute et auctoritate testamenti predicti concessimus et pro quadam summa pecunie nobis pre manibus soluta ad ultimam voluntatem ejusdem Roberti perficiendam vendidimus et hac presenti carta nostra confirmavimus Johanni Curraunt et Johanni Forster civibus et aurifabris Londoñ quandam placeam terre infra tenementum quondam predicti Roberti juxta ecclesiam Sancti Michaelis predictam super quam placeam modo situatur vestiarium ecclesie predicte que quedam [*sic*] placea continet in latitudine duas virgas et unum quarterium unius virge inter ecclesiam Sancti Michaelis predictam ex parte australi et aulam tenementi nuper predicti Roberti ex parte boriali et continet in longitudine quinque virgas inter vicum regium de Wodestret ex parte orientali et predictum tenementum nuper predicti Roberti ex parte occidentali et in altitudine a terra subtus solarium tenementi predicti tres virgas et unum quarterium unius virge Habendum et tenendum totam predictam placeam prefatis Johanni Curraunt et Johanni Forster heredibus et assignatis suis de capitalibus dominis feodi illius per servicia inde debita et de jure consueta imperpetuum. In cujus rei testimonium huic presenti carte sigilla nostra apposuimus. Hiis testibus Adam [*sic*] Bamme, Thoma Carleton, Roberto Asshcombe, Roberto Bright et aliis. Datum Londoñ nono die Januarii anno regni Regis Ricardi secundi post conquestum Anglie sexto.

Deed of 8th Henry IV. 1407, deposited in the Guildhall Library.

MS. 518.—Hec indentura facta inter Edwardum Pychard Armigerum et Agnetem uxorem eius que fuit uxor Johannis de Worstede quondam Civis et merceri London. ex parte una et Johannem Heed Civem et Tymbermonger Civitatis predicte ex parte altera testatur quod predicti Edwardus et Agnes uxor ejus una cum assensu et voluntate concesserunt dimiserunt et ad firmam tradiderunt prefato Johanni Heed tres mansiones cum Solario

superedificato et ceteris suis pertinentiis situatas in Hoggynlane in parochia sancti michaelis in Wodestreet london videlicet inter ecclesiam sancti michaelis predictam ex parte orientali et tenementum Willelmi Burden aurifabri ex parte occidentali et inter Hoggynlane prenominatum ex parte australi et terram ecclesie sancti michaelis predicte ex parte aquilonali Habendum et tenendum predictas tres mansiones cum solario superedificato et ceteris suis pertinentibus antedictis prefato Johanni Heed et assignatis suis a Festo natalis Domini Anno regni Regis Henrici quarti post conquestum octavo usque ad totam vitam pedicte Agnetis Reddendumin de annuatim prefatis Edwardo et Agneti aut alteri eorum vel eorum certo attornato viginti sex solidos et octo denarios sterlingorum ad quatuor anni terminos principales et in civitate London. usuales per equales porciones. Et presens Johannes Heed et assignati sui predictas tres mansiones cum solario superedificato et suis pertinentiis predictis bene et competenter sustentabunt ac contra ventum et pluviam in omnibus necessariis manutenebunt necnon pavimentum predictarum trium mansionum in quanto ad ipsum Johannem pertinet custodient sumptibus eorum propriis et expensis quotiens necesse fuerit durante termino supradicto et eas in fine termini sui sursum reddent et deliberabunt in adeo bono statu vel meliori prout illas receperunt igni alieno et nimia tempestate duntaxat exceptis. Et predicti Edwardus et Agnes heredes et executores sui prefatum Johannem Heed et assignatos suos de omnibus aliis redditibus oneribus et serviciis predictis tribus mansionibus cum suis pertinentiis spectantibus seu supervenientibus ultra reparacionem earundem simul cum pavimento prenominato vita predicte Agnetis perdurante acquietabunt et defendent. Et si predictus redditus viginti sex solidorum et octo denariorum per unum mensem ultra aliquem terminum predictum quo solvi debeat in parte vel in toto aretro fuerit insolutis vel si predicte tres mansiones cum suis pertinentiis prenominatis non fuerint sustentate manutente et custodite ut predictum est extunc bene licebit prefatis Edwardo et Agneti et assignatis suis in predictas mansiones cum suis pertinentiis et in quamlibet parcellam earundem intrare et distringere districcionesque captas licite apportare abducere et retinere quousque tam de arreragiis dicti redditus quam de reparacione predictarum mansionum eis plenarie fuerit satisfactum et persolutum. Et si sufficiens districcio ibidem non inveniatur pro arreragiis predictis extunc bene licebit prefatis Edwardo et Agneti heredibus et assignatis suis in predictas tres mansiones cum suis pertinentiis prenominatis reintrare et illas in eorum pristino statu retinere rehabere et possidere dictumque Johannem Heed et quoscumque suos inde penitus expellere et amovere hac indentura in aliquo non obstante. Et predicti Edwardus et Agnes predictas tres mansiones cum solario superedificato et suis pertinentiis predictis prefato Johanni Heed et assignatis suis forma ut supra durante vita predicte Agnetis contra omnes gentes warantizabunt per presentes. In cujus rei testimonium partes predictas hiis indenturis sigilla sua alternatim apposuerunt. Datum London. in Festo et anno supradictis.

Endorsed:

Pychard his & his wives Lease of 3 houses in Hogen Lane to John Heed.
Another endorsement above and of later date has been erased.

Extract from Deed of 10th Henry V. 1422. Roll 150 (3).

Agnes Pychard and John Worstede to John Broun :—Totum illud tenementum cum suis pertinenciis quod situatum est in parochia Sancti Michaelis in Hoggenlane Londoñ videlicet inter ecclesiam Sancti Michaelis predictam ex parte orientali et tenementum Johannis Biernes et Benedicte uxoris ejus ex parte occidentali et tenementum pertinens Rectori dicte ecclesie Sancti Michaelis et cimiterium ejusdem ecclesie ex parte boriali et venellam vocatam Hoggenlane ex parte Australi.

Will of John Broun, saddler, 18th Oct. 1st Henry VI. 1422, deposited in the Guildhall Library and enrolled in the Court of Husting. Roll 158 (32).

In Dei nomine. Amen. Decimo octavo Mensis Octobris Anno Domini millesimo quadringentesimo vicesimo secundo et anno regni Regis Henrici sexti post conquestum primo. Ego Johannes Broun Civis et Sellarius Londinensis sanus mentis et bonæ memorie facio ordino et constituo presens testamentum meum de terris et tenementis meis cum pertinentibus que habeo in civitate Londinensi in hunc modum. Imprimis lego et commendo animam meam Deo omnipotenti beateque Marie Virgini matri sue et omnibus sanctis ejus corpusque meum ad sepeliendum in magno cimeterio Ecclesie Sancti Pauli Londinensis coram crucem ibidem ubi corpora Katherine nuper uxoris mee et Henrici filii mei sub quadam petra marmorea requiescunt humata. Item lego et volo quod expense mee funerales fiant secundum discretionem executorum meorum prout in alio testamento meo de bonis et catallis meis mobilibus volui et legavi. Item do et lego Magistro Roberto fitzHugh Rectori ecclesie Sancti Michaelis in Hoggen Lane London et custodibus bonorum et operis ejusdem ecclesie ac quatuor parochianis etiam ejusdem ecclesie pro tempore existenti totam illam meam vacuam placeam terre cum pertinentibus quam habeo jacentem in parochia Sancti Michaelis in Hoggen Lane London inter predictam ecclesiam Sancti Michaelis ex parte orientali et tenementum Johannis Biernes aurifabri et Benedicte uxoris sue ex parte occidentali et tenementum pertinentem Rectori et Cimeterium dicte ecclesie Sancti Michaelis ex parte boreali et venellam vocatam Hoggen Lane ex parte australi in qua quidem dicta vacua placea terre totum illud tenementum cum pertinentibus quod nuper habui ex dimissione et feoffamento Agnetis Pychard nuper uxoris Edward Pychard et quondam uxoris Johannis Worstede quondam civis et merceri Londinensis Johannis Worstede filii et heredis ipsius Johannis Worstede merceri Ricardi Osbarn Johannis Carpenter Junioris et Johannis Clerk

Groceri civium Londinensium prout in quadam carta per ipsos inde mihi confecta lecta et irrotulata in Hustengo Londinensi de placitis terre tento die Lune proximo post festum Sancti Benedicti Abbatis anno regni Regis Henrici quinti post conquestum decimo plenius apparet nuper edificatum fuit et jam nuper per me totaliter est prostratum et abinde penitus remotum ad ibidem illam eandem ecclesiam versus occidentem elargandam et de novo fundandam edificandam et construendam una cum quodam campanili etiam ibidem. Habendum et tenendum totam predictam vacue placeam terre cum pertinentibus ut prefertur prefatis Magistro Roberto fitzHugh Rectori dicte ecclesie Sancti Michaelis et bonorum ac operis ejusdem ecclesie custodibus et parochianis ac eorum successoribus qui pro tempore fuerint in perpetuum de capitularibus dominis feodi illius per servitia inde debita et de jure consueta ad ibidem in super et supra eandem vacuam placeam terre cum pertinentiis predictam ecclesiam Sancti Michaelis una cum campanili versus occidentem tam in longitudine quam latitudine ad eorum proprium libitum et liberam voluntatem elargandam de novo fundandam edificandam fabricandam et construendam et hujus elargationis fundationis edificationis fabrice et constructionis ut prefertur fiendi .x. libras sterlingorum et illas .xvj. libras per Robertum Lovell Armigerum mihi debitas in dicto testamento meo de bonis meis et catallis mobilibus legavi ut ibidem plene liquet. Hujus autem testamenti mei Johannem Bagworth Johannem Sawyer Cives et Sellarios Londinenses Johannem Nassh de Wykeham in comitatu Kancie et Johannem Nassh apprenticium meum meos executores facio ordino et constituo per presentes. In cujus rei testimonium huic presenti testamento meo sigillum meum apposui Datum Londini die et anno predictis.

Probatum est hoc testamentum coram nobis officialibus domini archidiaconi Londini decimo kalendas Novembris anno Domini infrascripto et per nos tunc pronunciatum pro eodem et commissa est administracio omnium bonorum defunctum infrascriptum et ipsius testamentum concerneñ Johanni Bagworth Johanni Sawyer et Johanni Nassh apprenticio executoribus interius nominatis juratis primitus in forma juris et admissa per eosdem facultate committend consimilem administracionem hujusmodi bonarum Johanni Nassh de Wykeham executori interius nominato cum venerit et onus hujusmodi subire voluerit nobis specialiter reservata In cujus rei testimonium sigillum officii nostri presentibus apposuimus Datum Londini die et anno Domini supradictis.

Istud testamentum probatum proclamatum et irrotulatum fuit in Hustengo Londoñ de placitis terre tento die Lune proximo ante festum Sancti Valentini martiris Anno regni Regis Henrici sexti post conquestum octavo.

J. Carpenter.

Inventory of Goods at St. Michael Wood Street, 6th Edward VI.

(Public Record Office, Exch. Q. R. Miscellanea, Church Goods 4/3.)

(Indented parchment roll $6\frac{3}{8}$ inches broad.)

The certificat of Thomas Wattes . . . . . .
Medley chirchwardyns of the paryshe chirche of S . . . . . .
yn huggyn lane of london made to the charge to . . . . . .
right honorable S^r^ Rycharde Dobby^s^ Knyght lorde [mayor]
of london and other the kynges comissioners assigned for the sum . . . . . .
of all the chirche goodȝ w^t^in the citie of london delyvered vpp the xxiij^ti^ daye of July yn the Syxt yere of the Reign of o^r^ sovaigne lorde kynge Edwarde the Syxt.

In primis to the ffirste artycle conteyned in ther commission they certyfre that yn the ffirst yere of the Reigne of our Soveraigne lorde the kinge that now ys Robert crowas and Guy reade were then chirchewardyns

Item to the Second article conteyned yn the saide comission concernyng all suche goodȝ plate Juellȝ vestmentes Bellȝ and other ornamentȝ now belongyng and remaynyng severally yn the saide paryshe chirche or ellȝ where / hereafter severally and ptycularly appereth.

In p^i^mis a grete comunyon cuppe w^t^ a paten gylt.

Item a smalle comunyon cuppe parcell gylt.

Item a crysmatory of Sylver remaynyng yn the handes of maistres S[awkyns]

Item ij pyxes of Sylver and gylt remaynyng in the handes of the parson and the . . . kepynge of maistres Sawkyns . . . . . .

Item a cope a vestment a cusshen and a cloth of velvett opon cloth of golde.

Item a cope of velvett olde with garters.

Item a cope and a vestment of white damaske.

Item iiij Awbes and iij surplyses.

Item ij table clothes one of Dyaper the other of playne clothe.

Item ij towellȝ of Dyaper.

Item ij olde herseclothes.

Item x bokes of the Servys.

Item a byble and a peradphrase.

Item a payre of organs.

Item iij Bellȝ.

Item a Saunce bell.

Item ij olde chestȝ.

Item a paynted cloth that was over the high Awter.

Item a latten bason in the parsons kepynge.

Item a corporas clothe.
Item a comunyon table.
Item ij newe ffourmes & iiij fote paces.
Item a byble yn latten in the ꝑsons kepynge.
Item a cope a vestment and ij deacons of grene velvett enbrodered w^{t} lybardes hedd^{e} and sterres beynge now in the custodye of master John lambert Alderman.
Item ij tyn candylstykk^{e}.

Item to the thirde artycle comprysed yn the saide co$\tilde{m}$ission concernynge any Inventory delyvered to the late bysshopp of londons officers they knowe of none But as towchyng what goodes plate Juell^{e} and other ornament^{e} as dyd belonge to the saide paryshe chirche the firste yere of the Reigne of our saide Soveraigne lorde the kynge that nowe ys hereafter ꝑticulerly and Severally doth appere
First a crosse plated w^{t} Sylver and gylt.
Item iiij buttons for the sacrement clothe.
Item ij chalasys gylt.
Item a chalys parcell gylt.
Item ij clothes for the Sacrement.
Item a cloth steyned to hange before the rode.
Item a xj corporas caces & certen clothes to them.
Item a vestment with flowers.
Item a vestment w^{t} a longe strype of golde.
Item a vestment w^{t} a Raynbowe.
Item a vestment of russett velvett.
Item a cope w^{t} flowers of golde and olde tynsew.
Item ij deacons w^{t} the raynbowe.
Item a olde vestment eaten w^{t} Ratt^{e}.
Item ij curtens of red Sylke.
Item ij white curtens.
Item ij curtens of Sylke.
Item ij awter clothes of white and grene sylke.
Item a Sute of white copes and vestment^{e}.
Item a vestment and ij deacons of grene velvett.
Item ij awter clothes of white and grene damaske.
Item a vestment of blak.
Item a cope of blak Satten.
Item ij copes and a vestment of red sylke.
Item a cope wrought w^{t} golde.
Item a vestment for lent.
Item a vestment w^{t} katheryn wheles.
Item a olde vestment.

Item a cope of red velvet w^{t} flowers.
Item ij copes of white fustyan.
Item vj olde vestmentꝭ of Dornex.
Item a canape clothe.
Item a cope ij deacons and a awter cloth of velvett upon clothe of golde.
Item certen paynted clothes
Item iiij banners.
Item a myter.
Item certen latten candylstykꝭ that were in the Roode lofte.
Item ij tyn candylstykꝭ.
Item a crysmatory of Sylver.
Item ij pyxes of Sylver.
Item a cope a vestment a cusshen and a herse clothe of velvet upon cloth of golde.
Item a cope of olde velvett w^{t} garters.
Item a cope and a vestment of white damaske.
Item iiij awbes of lynnen.
Item iiij Surplyses.
Item ij table clothes one of dyaper and the other playne clothe.
Item ij towellꝭ of Dyaper.
Item ij olde herse clothes.
Item a byble yn ynglyshe.
Item a payer of organs.
Item ij olde chestꝭ.
Item a latten bason.
Item a byble yn latten.
Item a cope a vestment and ij deacons of grene velvett enbrodered with lyberdꝭ heddꝭ and sterres.

Item to the fourthe artycle comprysed yn the saide cõmission concernynge what goodꝭ Juellꝭ or ornamentꝭ hath ben solde to whome and by whome and what use the money Receyved hath byn conv̄ted unto and yn whose handes the rest remayneth hereafter dothe appere.

Item Solde yn the firste yere of the reigne of o^{r} saide Soveraigne lorde the kynge that now ys by Robert browne and Guy wade then chirchwardeyns.

Item Receyved for cꝯxxv^{li} weight of latten candylstickꝭ at xviij^{s} the C. Summa xlj^{s} iiij^{d}

Item Solde the Seconde yere of the reigne of o^{r} said sov̄raigne lorde by Guy wade and Thomas walker then chirchwardens.

Item R̸ for ij gylt chalasys weyinge xxxix onces at v^{s} viij^{d} the once xj^{li} xij^{d}

Item R̸ for a chalys parcell gylt weyinge xvij oncꝭ q̃ter at v^{s} y^{e} once iiij^{li} vj^{s} vij^{d}

Item Solde the fourthe yere of the reigne of our saide Soveraigne lorde the kynge that now ys by Adam Gardener and walter Sawkyns then chirchwardens all these p̄cellꝭ folowynge

Item Solde to Thomas Bonde a sacrement cloth iij^{s}
Item more to hym a cope with flowers of golde and olde tynsen xx^{s}
Item more to hym ij Awter clothes of white and grene—xxx^{s}
Item more to hym ij Awter clothes of damaske xiij^{s}
Item Solde to water Sawkyns a cloth that hange before the Rode [*no amount given*].
Item more to hym a myter of white fustyan and a sacrement clothe all x^{s}
Item more to hym a vestment of russett velvet xiiij^{s}
Item more to hym ij wihte curtens iiij^{s}
Item more to hym ij olde vestmentꝭ of dornex iiij^{s} iiij^{d}
Item Solde to Robert mather xi corporas caces x^{s}
Item more to hym a blak vestment iiij^{s}
Item more to hym ij copes and a vestment of [blak sylke *struck through*] red sylke xxxiiij^{s}
Item more to hym a cope w^{t} crownes of golde xxvj^{s} viij^{d}
Item Solde to John Abell a vestment with flowers xxvij^{s}
Item more to hym a olde vestment eaten with Rattes iij^{s} iiij^{d}
Item more to hym ij curtens of red sylke iiij^{s}
Item more to hym iiij white damaske copes and the vestmentꝭ xlvj^{s} viij^{d}
Item more to hym a vestment w^{t} the kateryn wheles iiij^{s}
Item more to hym a canape cloth xiiij^{s}
Item more to hym a cope ij deacons and a awter cloth xij^{li} vj^{s} viij^{d}
Item more to hym iiij banners xv^{s}
Item Solde to Raffe Hille a vestment with a longe strype of golde xv^{s} vj^{d}
Item more to hym a vestment with the Raynebowe xxxj^{s}
Item more to hym ij curtens of Sylke x^{s} x^{d}
Item more to hym a cope of red velvett with flowers xvij^{s}
Item Solde to John Medley two deacons with the Raynebowe xx^{s}
Item more to hym a vestment and ij deacons of grene velvett iij^{li} vj^{s} viij^{d}
Item more to hym a cope of blak Satten xxx^{s}
Item more to hym iiij olde vestmentꝭ vij^{s} viij^{d}
Item more to hym olde paynted clothes xvj^{s}
Item Solde to Thomas Walker a vestment for lent iiij^{s} vj^{d}
Item more to hym a vestment of red dornykꝭ iiij^{s}
Item Solde to Thomas Rede a C and xviij^{li} of latten candylstykꝭ xviij^{s} vj^{d}
Item Solde to the clerke two white fustyan copes v^{s}
Item Solde to Adam Gardner olde lynnen cloth and olde tymber xij^{s}
Item more to hym xxij oncꝫ of gylt plate at vj^{s} viij^{d} the once vij^{li} vj^{s} viij^{d}
Item more to hym one once & a halffe of white plate at v^{s} vj^{d} the once viij^{s} iij^{d}
Item more to hym for old Iron xvij^{s} iij^{d}
Item more to hym two candylstykꝭ . . [*cut off.*]

Summa totalis that the plate and other parcellꝭ aforesaide solde amounteth to lxv^{li}. xiij^{s} v^{d}

Whereof spent and layde out to thuse of the saide paryshe chirche yn reparacoñs and other necessaries thereunto apperteynynge yn the first yere of the reigne of our saide soveraigne lorde the kynge that nowe ys by Robert Browne and Guy Wade then chirchwardeyns xiiij^{li} xvj^{s} v^{d}

Also spent and layde out in the Seconde yere of the reigne by Guy Wade and Thomas Walker then chirchwardeyns yn necessary charges as ys aforesaide xxj^{li} ix^{s} x^{d}

Also spent and layde out in the thirde yere of the reigne of o^{r} saide Soveraigne lorde by Thomas Walker and Adam Gardener then chirchwardeyns for lyke charges x^{li} v^{s} vj^{d}

Also spent and layde out yn the fourthe yere of the reigne of o^{r} saide Soveraigne lorde by Adam Gardener and Water Sawkyns then chirchwardeyns for lyke charges xix^{li} xj^{s} v^{d}

Also spent and layde out yn the fifte yere of the reign of o^{r} said Soveraigne lorde aforesaide by Water Sawkyns and Thomas Wattes then chirchwardeyns for lyke necessaries xiij^{li}

Item for drawynge & ingrosynge this accounte x^{s}

Memorand̄ that there remayneth yn the handes of Adam Gardener haberdassher late chirchwarden of the chirche money lviij^{li} iiij^{s} which money he had yn his handes at bothe the Falles lviij^{li} iiij^{s}

Debtę owynge by the saide chirche.

Item to George Medley mercer for money by hym lent to the chirche lxxxxvj^{li}

John lee parishesoñ there

per me Robart brownell.

SARACENIC GOBLET OF ENAMELLED GLASS IN THE BRITISH MUSEUM (FULL SIZE).

Published by the Society of Antiquaries of London, 1902.

VII.—*On a Saracenic Goblet of Enamelled Glass of medieval date.* *By* Charles Hercules Read, *Esq.*, *Secretary.*

Read 27th February, 1902.

During the past five or six years a number of interesting examples of enamelled glass have been sent to Europe from various sites in the nearer East, the principal localities near which they are said to have been found being Damascus, a spot in the neighbourhood of Aleppo, and at Koos and Fostat in Egypt.

One of these, the subject of the present paper, has come into my hands for the British Museum collection, through the liberality of Miss Alice de Rothschild. It is figured in colours in the accompanying Plate XIV. of the size of the original.

It is of clear white glass, rather full of bubbles. It is decorated with enamel colours, heightened with gilding; the ornament consisting of two medallions with scrolls in gold on a blue ground, separating two conventional palm trees, the trunks being formed of a line of triangles; in the spaces are eight rosettes. The enamel colours, red, white, pale emerald green, and sapphire blue, are chiefly applied to the exterior of the cup, but the blue backgrounds of the medallions are applied to the inside of the glass, the gilding only being outside. It measures 5 inches (12·7 cm.) in height, and the diameter at the mouth is 3·1 inches (8·00 cm.) The Syrian vendor stated that it came from excavations near Aleppo, a story rendered credible by the ancient history of that city.

The form of this beautiful vessel presents no unusual features, being simple and of the outline commonly found in the glass goblets of the Saracens. But one peculiarity in its manufacture calls for a detailed notice. This may be seen in the coloured plate, but is more clearly shown in the section (fig. 1), viz. that the goblet is provided with a foot rim which has been separately made and fixed to the base.

The bottom of the vessel itself is pushed up inwards, in the fashion to be found in a champagne bottle, but it has a peculiar feature in that the actual centre, the apex of the cone thus formed, is reflexed downwards, apparently leaving a small hole through the bottom of the glass, which is only closed by the fixing on of the added foot. This feature appears to be common in these oriental goblets, and, so far as my experience goes, is not found in any of European make.

In view of the belief held by some, that most of the so-called Arab mosque lamps and such vessels as the one now in question are not the products of the East, but are of Venetian make, and were only exported to the East from that centre, it may not be amiss to put together some of the reasons for holding the contrary opinion, in favour of their eastern origin.

Fig. 1. Section of Saracenic goblet of enamelled glass. ($\frac{1}{2}$ linear.)

A certain amount of evidence has been set out by the late Mr. Nesbitt in his *Catalogue of Glass Vessels* and in the earlier *Catalogue of the Slade Collection.* With regard to Aleppo, whence comes the glass now before us, it is abundantly clear that in the fifteenth century of our era, and probably much earlier also, a very considerable manufacture of glass vessels was carried on there. In the Sefer Nameh, the account of the travels of Nassiri Khosrau in Syria, Egypt, etc. from A.D. 1035-1042, mention is often made of glass factories, particularly at Cairo and Tyre, and some of these are quoted by Mr. Nesbitt. But an extremely valuable translation of the work was published by Monsieur Charles Schefer in 1881, and the notes added by this distinguished orientalist greatly increase the usefulness of his translation. In his note on the description of Tripoli, after mentioning the prosperous condition of the town and the fertility of the country in the eleventh and twelfth centuries, he says "Outre les fabriques de papier dont parle Nassiri Khosrau, Tripoli possédait, comme toutes les villes de la côte, des verreries. Dans le traité que Boémond VI., prince d'Antioch et Comte de Tripoli conclut le 1^{ev} juin 1277 avec J. Contarini doge de Venise nous trouvons la stipulation suivante 'Et si Venicien trait verre brizé de la ville il est tenuz de payer le dhime'" (p. 42 n). In Tyre, as might be expected, the manufacture of glass was carried on to a great extent in medieval times. William of Tyre (A.D. 1130-1188) speaks of the glass wares of the city that were exported to all lands, and Benjamin of Tudela (d. 1173) also refers to the beauty of the glass vessels of Tyre. Thus

there would be nothing surprising in finding a glass factory in a city of such importance as was Aleppo at the same period. Nassiri, however, does not specifically mention glass, though he enlarges on the trade and importance of the city, comparing it in size with Balkh. A writer in the earlier years of the fifteenth century, however, one Hafiz Abrou of Herat, is more precise. He states "Une industrie particulière à Haleb est celle de la verrerie. Nulle part ailleurs, dans le monde entier, on ne voit de plus beaux objets en verre. Quand on entre dans le bazar où on les vend, on ne peut se déterminer à en sortir, tant on est séduit par la beauté des vases qui sont decorés avec une élégance et un gout merveilleux. Les verreries d'Haleb sont transportées dans tous les pays pour être offertes en présent." Such a description, even if due allowance be made for the florid exuberance of oriental statement, can safely be taken as an indication that the productions of Aleppo surpassed those of any town known to the writer, who was both a scholar and a traveller. All these writers, it can scarcely be doubted, were describing what they had themselves seen, and if William of Tyre may be suspected of overpraising the wares of his metropolis, a native of Herat would have no such tendency at Aleppo. Many other native writers might be quoted in support of the manufacture of glass in the cities under Saracen rule on the Mediterranean countries; but enough has been cited to prove that there is no improbability in attributing a highly decorative specimen to one or other of the Syrian factories. This probabilty is further increased by the discovery, apparently in the same excavations at Damascus and Aleppo, of traces of pottery kilns with remains of glazed wares ornamented in a style fully equal in artistic perfection to the best products of the Persian kilns in the thirteenth and fourteenth centuries. The decorative motives found on the pottery bear the same relation to those of the glass that is found in other parts of the nearer East, *e.g.* Egypt and Persia itself.

Gustav Schmoranz in his fine volume on oriental glass[a] has also come to the conclusion that Syria (principally Aleppo and Damascus) was the home of these glasses, unless, indeed, they were made in Persia itself, and in a somewhat original manner claims a monopoly of the "discovery," as he calls it. As an opinion, if not a discovery, it was certainly held by others; and that the art was derived from Persia, if not actually the work of Persians, is becoming every day more probable. The dissertation on the general question of the origin of the art given by Schmoranz is of considerable interest, as is also the account of the chemical

[a] *Old Oriental Gilt and Enamelled Glass Vessels.* Fol. Vienna and London, 1899.

analysis of the glass and colours made by Dr. F. Linke, one result of the latter being to demonstrate that cobalt is never found in the enamel of old oriental glass. A special chapter is, however, devoted to goblets, and descriptions, figures, and sections are given of the principal pieces known to Mr. Schmoranz. While it is his opinion that no enamelled glass was made as early as the twelfth century, he places the bulk of the goblets in the beginning of the following one, an attribution that is borne out both by their history and by the more familiar style of the European cases in which some of them are preserved. That in the Museum at Douai, called the Goblet of the Eight Priests, was bequeathed in the fourteenth century by one Marguerite Mallet as an endowment for that number of priests, and its fine embossed leather case was probably made for it at that time. A second in the museum at Chartres is known as the Cup of Charles the Great, and others in the Green Vaults at Dresden, the Löwenburg near Cassel,[a] as well as the well-known Luck of Edenhall,[b] all have the same general form, and are ornamented

[a] The cup in the Art collections in the Löwenburg at Wilhelmshöhe, near Cassel, resembles more nearly that in the Waddesdon Bequest than do any of the other known goblets of this class. The decoration consists of convivial scenes forming a broad band around it, and the figures have at their sides representations of similar cups. It is figured by Schmoranz (fig. 27 on p. 31), and a portion of the decoration is shown on his Plate XXXIII. From the figure it would seem fairly certain that the construction of the foot is the same as that of the subject of this paper, shown in my fig. 1. Schmoranz gives a section of it among those on p. 41 of his work, but I suspect he has omitted to notice the double thickness of the foot, a peculiarity that I have found to be invariable in this class of oriental glass.

[b] The Luck of Edenhall is the subject of a small volume of verse, entitled "The Luck of Edenhall. A modern lay of the olden day. By the Rev. Beilby Porteus, Vicar of Edenhall." Carlisle, 1856. The frontispiece of this volume is a coloured figure of a cup "from a drawing by the Rev. B. Porteus." There can be little doubt, however, that it is taken, not from the cup, but from Lysons's figure, to be shortly mentioned. Mr. Porteus in his notes gives what was no doubt the popular theory, that the glass was of Venetian make and intended for a chalice.

The plate in Lysons's *Magna Britannia* (Cumberland, p. ccix) shows not only the glass, but also the leather case and the sacred monogram on the top, the two first of the real size. The height of the cup itself appears to be $6\frac{3}{4}$ inches (17·1 cm.). The colours employed in the decoration are blue, white, yellow, and a little red. Lysons's description is as follows:

"The curious ancient glass vessel called the *Luck of Edenhall*, on the preservation of which, according to popular superstition, the prosperity of that house depends, is well known from the Duke of Wharton's ballad, which begins,

'God prosper long from being broke
The *Luck of Edenhall*.'

"It is of a green coloured glass ornamented with foliage, and of different colours in enamel:

either with an inscribed band, usually a pious formula, or with formal ornaments. The fine cup in a silver mount in the Waddesdon Bequest in the British Museum is more richly decorated than most of the others, but neither the inscription nor the groups upon it give clear indication either of its date or origin. An interesting glass of the same kind, but with the simplest ornament, is in the museum of Silesian antiquities at Breslau, and is known as St. Hedwig's glass, an attribution shared by several other early glass vessels. In outline this example more nearly approaches the subject of this paper than any of those cited. One of the Paris

Fig. 2. Enamelled glass goblet in the British Museum. ($\frac{1}{2}$ linear.)

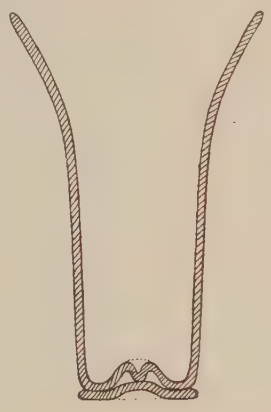


Fig. 3. Section of glass goblet (fig. 2) in the British Museum. ($\frac{1}{2}$ linear.)

antiquity dealers recently brought me another cup, which, like that of Charles the Great, has an inscribed band as the only decoration. This he claims to have been made for the great Saladin (1137-1192) on the somewhat slender evidence that the motto inscribed upon it is found upon the coins of that monarch. Although Mr. Schmoranz's statement that no enamelled glasses were made as early as the

the case of leather, in which it is kept, is ornamented with scrolls of vine leaves, and on the top are the letters I h c: from which it seems probable that this vessel was originally designed for sacred uses. From the style of the ornaments, it seems to be of as early an age as the beginning of the fifteenth century, probably earlier."

The leaves on the case may conceivably be intended as vine leaves, but they are simple trefoils of a conventional kind, and it is improbable that there is any reference to a sacred use of the glass intended either in the floral decoration or in the use of the sacred monogram.

[a] Read, *Catalogue of the Waddesdon Bequest*, No. 53 and Plate XIV.

twelfth century may be regarded as rather dogmatic, yet it is undoubtedly a fact that all our evidence is in favour of the thirteenth century as the starting point for enamelled glass of this kind. The analogy of style with the dated metal work of the time and the small amount of European evidence that we have, both point to approximately that date.

I have thought it worth while to illustrate another small goblet in the British Museum collection, reproduced in fig. 2. This charming little vessel is stated to have been found at Koft in Egypt. It is $4\frac{1}{4}$ inches (10·8 cm.) in height and $2\frac{7}{8}$ inches (7·00 cm.) wide at the mouth. It is of clear yellowish glass, much thicker and more horny in texture than that shown in the coloured plate. The only decoration consists of a number of fishes, drawn in red outline with great freedom and skill, each being rubbed over with gilding. This piece has the same peculiar formation of the bottom that was described in Miss Alice de Rothschild's cup, viz. the raised boss inside with apparently a hole in the centre, and an added foot (fig. 3).

Mr. Schmoranz has given a number of sections of the goblet, as well as of the other objects he describes, but I feel sure that he has omitted to notice this peculiarity, and that his sections therefore lack one of the special characters of the oriental method. He gives, for instance (in his fig. 1), a perspective view of a fine bowl in the Musée de Cluny, showing the base inside, where the central hole is clearly visible, but in his section of the same vessel no indication of this is shown.

This oversight, if it be one, is to be regretted, for where we have so little evidence of any kind for the origin of a most interesting and beautiful class of works of art, any technical point may be of value.

With a view of dispelling any doubt that may exist as to the true oriental origin of the glass vessels with eastern decoration, I have reproduced in the accompanying figures (4 and 6) two of the earliest cups of the same kind of European, and doubtless Venetian, make. The forms, it will be seen, are practically the same as those of the eastern cups already described, and the date of their manufacture is probably within a few decades of their oriental prototypes. Simple as the form is, I think it not improbable that the European is a copy of the oriental original, for of these latter there must have been many scattered among the wealthier families of Europe, and with more probability in Venice than elsewhere.

The first of these goblets (fig. 4) was formerly in the possession of Mr. Adrian Hope. It is of clear slightly greenish glass, well made, and with but few bubbles.

The edges of the base are rounded and the bottom is pushed inwards, forming a regular cone inside. The decoration is in enamel colours, and consists of a broad band round the middle, on which is represented the Virgin and Child seated between two standing angels, each holding a candlestick; the rest of the space is

Fig. 4. Enamelled glass goblet formerly in the possession of Mr Adrian Hope, now in the British Museum. ($\frac{1}{2}$ linear.)

filled with standing figures of SS. Peter and Paul. The figures are divided by formal plants. On a narrow band above is the inscription in silver, now black:

✣ DNIA (*sic*) MATER · REGIS · ALTISSIMI · ORA ꝑ PA.[a]

The corresponding band below the subject has a formal scroll in green, appearing red by transmitted light. The colours employed are light red, brilliant apple green, cobalt, and white for the faces, the Virgin's throne, etc. The accessories and outlines are in gilding. The back of the inscription, as seen through the

[a] DNIA probably stands for DOMINA.

glass, shows that the silver is laid on a ground of yellow enamel. The height is $7\frac{1}{2}$ inches (19·00 cm.). This fine piece can scarcely be later than the latter half of the thirteenth century. The difference in the make of the foot, which is quite simple and really somewhat unpractical, is distinctly seen in the view of the glass and yet more clearly in the section (fig. 5). A foot rim in the oriental style would not only have made the beaker stand more safely, but could easily have been extended outwards and thus have improved its proportions.[a]

Fig. 5. Section of the glass goblet (fig. 4) formerly in the possession of Mr. Adrian Hope (British Museum). ($\frac{1}{2}$ linear.)

The second of the European beakers, which I have thought of sufficient interest to compare with the eastern examples, has points of resemblance with the foregoing one, as well as differences, and both may prove of value in

[a] It is of interest to state that while this short memoir was in course of preparation a London dealer brought to me two other beakers of this class. I have reason to believe that they were found with the one above mentioned, attributed to Saladin, at Damascus. One of these was even more cylindrical than that shown in the coloured plate, and was covered with a simple vermicular diaper in red, not a very attractive specimen. The other was almost precisely of the proportions of the Venetian goblet just described, with a wide mouth and a small base. Both beakers, however, had the peculiar construction of the foot to which attention has been called in the text.

elucidating the relations of the Venetian and oriental manufacture. It is a beaker of thin glass, light in weight and full of bubbles and imperfections, far less advanced in technical qualities than the one before described (fig. 6). It is painted in enamel colours with three shields of arms, separated by formal plants. Above is a band with the legend in thick white enamel :

✣ ꝏAGISTꝞR · ALDRꝞVANDIꝑ' ꝏꝞ · FꝞCI.

The subject and inscription are bounded by lines of canary yellow and red. The flowers are crudely drawn in white outline, filled in with blue, red, and green.

Fig. 6. Enamelled glass beaker in the British Museum. (½ linear.)

Fig. 7. Section of glass beaker (fig. 6) in the British Museum. (½ linear.)

The shields are heater shaped, with red borders edged with white. The first has *or three stag's horns in fesse azure ;* the second, *argent three keys in fesse gules ;* the third, *per fesse argent and sable, in chief a bar.* The colours are thickly laid on, partly outside the vessel, partly inside. The base is pushed inwards, forming a cone (fig. 7) ; the foot rim is formed of a thread, fixed on with the blowpipe. It is $5\frac{1}{8}$ inches in height (13·0 cm.). This piece was formerly in the collection of Herr Gedon of Munich, and was acquired by the Museum in 1876. A comparison of this goblet with the preceding example shows a notable difference in the quality of the glass of which it is made, the latter being far superior in quality. The painting on the other hand, while scarcely showing the same skill, has a marked

affinity in style, as may be seen in the blocks; the modelling of the leaves is more particularly remarkable as having points in common. A peculiar interest, however, attaches to this piece, from the special interest of the inscription as giving the name of a glass maker, or perhaps a glass painter, at this early date, for the period of its production cannot be very distant from that of the other Venetian goblet, viz. some time in the thirteenth century. Who Master Aldrevandini was it is useless to speculate, nor shall we discover him until a proper search is made in the archives of the craft of glass workers at Venice. An examination of the arms, however, has shown that the glass was made to a foreign order, and our Fellow Mr. Max Rosenheim has narrowed the search for the original owner to the province of Suabia, to which two out of the three coats belong. The coat with the three stag's horns belongs, with variations of colour, to no less than six towns in Suabia, as well as to the family of Landtau; a second, that of the three keys, to the family of Spet of the same district. There is thus a fair probability that the beaker belonged to some Suabian of importance.[a]

Such is the evidence, mainly that of the objects themselves, that I am able to bring before the Society. I claim that it goes some way towards proving the existence in the thirteenth century of a fairly perfect manufacture of glass vessels in Europe, and preferably in Venice, and that, at approximately the same time, there were existing in various flourishing cities of the Mediterranean and the East, under Saracen rule, factories producing craftsmen at least as skilful as those working in Europe. These facts added to certain technical differences between the two products, some of which have been pointed out while others are only to be perceived by comparison or analysis, lead me to think that, even if the fragility of the objects were not in question, that there is a strong case for the home manufacture of such glass articles as the mosque lamps of Egypt and Syria. At the same time, it is something to have put on record the achievements in the same craft of the accomplished workmen of Venice.

Note.—The so-called "three colour process" by which the coloured plate is produced, is an admirable method with limitations; but in reproducing iridescent glass, which literally has the colours of the rainbow, the process can scarcely claim to be more than a paraphrase of the colour effects.

[a] It is perhaps prudent to state here that I am well aware that there are existing forgeries of this class of glass, some of which I have had the advantage of examining; but I have no doubts of the authenticity of this piece.

VIII.—*The Charters of the Manor of Ropley, Hants.* *By* T. F. Kirby, *Esq., M.A., F.S.A., Local Secretary for Hants.*

Read 13th March, 1902.

The manor of Ropley, like the manor of Meonstoke about which I read a paper in December, 1900,[a] is a made up one. A number of ancient free tenements, holden by suit and service of the bishopric manor of Sutton, were purchased and thrown together between the years 1390 and 1476, and became the college manor of Ropley, the copyholders in which held at the will of the college as they had previously held at the will of the free tenants of the bishop, and attended the court of the college steward as they had previously attended the court of the bishop.[b]

That the manor of Ropley was early recognised as a customary manor of copyholds for lives cannot be doubted. I have a grant by Roger Gerveys (of whom presently) to John atte Putte and Margery his wife, and the heirs of their bodies, remainder to the grantor's right heirs, of a free tenement at Ropley in the manor of Sutton, reserving 6s. yearly rent, and a heriot and relief on the death of a

[a] *Archaeologia*, lvii. 285-294

[b] The statute *Quia Emptores* was no obstacle to a manor being made up in this way. According to the second resolution in *Melwich and Luter's Case*, 4 Co. Rep. 26, where a lord of a manor hath several ancient freeholds held of his manor, and grants the inheritance of them all to another, so that by such grant they are severed from the manor; yet the grantee may hold courts for the customary tenants and accept surrenders and make admittances and grants. For every manor consisting of freeholders and copyholders hath in effect two courts: the one a court baron for the freeholders, and in this the suitors, *i.e.* the freeholders, are the judges; and the other is a customary court for the copyholders, and in this the steward or the lord of the manor himself is judge. And though in strictness of law after the grant of all the freeholds from the manor it is no longer a manor, because it wants freeholders, yet the grantee may hold such courts for freeholders as the grantor might have done. And though by his own act he cannot have two manors out of one to consist of demesnes and freeholds, yet he may make a customary manor of copyholds, which is what Wykeham did in this case.

tenant, to the bishop of Winchester for the time being. John atte Putte died without issue by Margery; Gerveys sold his remainder to William of Wykeham; and there is a memorandum on the back of the grant to the atte Puttes that at a court held at Ropley on the 14th April, year not mentioned, Margery the widow surrendered her estate in the presence of John Fromond and others. Now Fromond was steward of the college manors from 1408 till his death in 1420.

The manor of Ropley extends into several parishes east of Winchester. Some of the free tenements comprising it, lying in the parishes of Ropley, Medstead, Bighton, Drayton, Bishop's Sutton, and Winnall, near Winchester, Wykeham bought from a family named Gerveys. Another free tenement in Ropley he purchased of one William de Wandelesworth. All these Wykeham settled on his college in 11 Richard II. And in the year 1399 he demised to the college other lands in the parish of Ropley, also parcel of the manor of Bishop's Sutton, which had come into his hands as lord of the manor, probably by escheat or forfeiture, for a term of one hundred years. These freeholds and leaseholds, together with lands at Ropley North Street, and lands in Hattingley and Medstead which were purchased for the college in 35 Henry VI., and lands called Minchins, in the parish of Wield, purchased for the college in 12 and 15 Edward IV., became the college manor of Ropley. The college stood in the shoes of the former owners of the free tenements which comprised it, and their tenants at will, the actual cultivators of the soil, are represented by the copyholders for lives of the present day.

The fact of one of the free tenements incorporated in the manor being leasehold may be attributed to Wykeham's advanced age. In 1381, when he annexed the bishopric estate of Downton, in Wiltshire, to his college, he obtained the consent of the Crown and the Pope to the alienation, and gave an equivalent to his see. All this took time; but in 1399 he was 75 years of age, and probably despaired of living long enough to carry out a similar exchange.

The lease is recited in the deed of confirmation (No. 131) by the prior and convent of St. Swithun, which I exhibit. It is dated 18th April, 1403, three years and a half after the lease. The ancient rents were reserved, so that the see should be no loser: 38s. 2d. rent of assize, and 40s. 7½d. in lieu of chursetts,[a] and all other services and customs at Michaelmas yearly, and the further sum of 1s. 6d. by equal half-yearly payments at the Court of the Manor of Sutton.

The seal is broken, and sewn up with some of the fragments in a silk and woollen pouch.

[a] Church scot or church dues.

1.

3.

2.

5.

4.

7

6.

C. F. Kell & Son, Photo Print

SEALS FROM CHARTERS OF THE MANOR OF ROPLEY, HANTS.

Published by the Society of Antiquaries of London, 1902.

The description of the property in the lease is "six tofts, three yard lands, eight acres of wood, three half yard lands, fifty-eight acres of land and wood, and two parcels of waste in Ropley."

This lease was also confirmed by an *inspeximus* (No. 131A) under the great seal, tested at Westminster 17th July, 4 Henry IV., "pro quadraginta solidis solutis in hanaperio." The seal is that known as "Willis, G.," made for Edward III. in consequence of the Treaty of Bretigny in 1360, with the name Edwardus altered to Henricus. It is a perfect specimen, and appended to the patent by purple and red silk cords. It is protected by flaps of thick brown serge.

The lease was renewed 9th January, 20 Henry VII., by bishop Foxe, for a term of 99 years, and the renewal was confirmed by prior Sylksted and the convent of St. Swithun under their capitular seal (No. 131B).

The seal of dignity of bishop Foxe in red wax is also appended; but it is unfortunately broken at each end (Plate XV. fig. 1). It has in the centre, under a double canopy, a seated figure of Our Lady and Child, with the Holy Trinity in the supercanopy above. Under pentises on either side are the standing figures of St. Peter and St. Paul. The sinister of two shields is left in base, bearing the bishop's cognizance, a pelican in her piety. The legend is:

[SIGILL]VM RICARDI ⟨ornament⟩ | DEI GRIA EPI WINTON.

Bishop Cooper renewed the lease in 31 Elizabeth for a third term, but to the queen, not to the college (No. 131C)[a] in consequence of the restrictions imposed on the leasing powers of bishops by statutes 13 Elizabeth, c. 10, and 18 Elizabeth, c. 12, not disenabling them, in the opinion of Crown lawyers of that day, from granting long leases to the Crown, and the queen was moved to assign the lease to the college by the following memorial (No. 131D).[b]

"Certaine Remembrances to induce her Ma^tie the rather to assigne the state of such Lands

[a] The lease has appended to it two seals, that of the bishop and that of the chapter. The bishop's seal is a pointed oval one 3½ inches long (Plate XV. fig. 2). The device represents Our Lord standing and giving a book inscribed PASCE OVES MEAS to a kneeling figure of St. Peter. Between the figures is a flock of five sheep. Above is a scroll inscribed ITE PREDICATE EVANGELIVM, and over it the Holy Dove descending from a cloud. In base is a large shield encircled by the Garter with the arms of the church of Winchester impaling those of the bishop, *a fess between three pelicans in piety*. The legend is: SIGILLVM THOMÆ COOPERI EPISCO[PI WINTON] 1584. On the back is a small oval counterseal with the bishop's arms, as above, encircled by the Garter (Plate XV. fig. 3).

[b] In one or two other cases about that time the college was not so fortunate, the renewed lease being assigned to a courtier. It may be suspected that the college owed its success in this case to the little value of the property.

as the late Bisshop[a] demised unto her Ma^tie with hope it would please her Highnes to assigne the same to the colledg of Winchester.

The most parte of the land was purchased by William Wickham o^r fownder from the Tenauntes that held it to them and their heirs of the Bisshoprick for fyne certaine: and by reason he died before he could make recompense to the Bisshoprick for the same, he did not convey over to the colledg the ffee simple thereof, but made us an estate by Lease for fowerskore and nynetene yeres (*sic*); which Bisshop Foxe renewed for as many. And so hath the Land remayned in the colledg use ever synce the first foundac̃on.

The land is not much, and rated at the uttermost valew for the Bisshop, and yeldeth to the Bisshoprick farre greater com̃oditie than when it was held by copiehold of inheritance, as at first it was.

Many states have ben graunted of that Land to divers of o^r Tenauntes for Lyves and yeres not yet determined; so as yf their graunts should now be frustrated, a nomber of poore men should be utterlie undone, and the Colledg in danger to suffer great losse for not performing the graunts made unto their Tenauntes.

The Land called the Parke is a small piece of barren ground, so sower and weate, that it yeldeth nothing but birche, woode and heath, and the rest besides the Park is not seaven score acres of as drie and stonie ground as any is in Hampshire, everie where so intermingled with the Landes of the Colledg, that they can hardlie be held by divers Tenauntes without contynual trespassing one and other, besides making more fenses than the Land is worth.

For these respects o^r humble Petic̃on is, it might please her Ma^tie to be as gracious to o^r howse as other her Progenitors have ben before; the Colledg having p̣cured none other graunt from the Bisshop, but such as have ben usually made unto them ever synce their first foundac̃on.

On the 1st August, 1649, the bishoprick manor of Sutton, including the reversion to this leasehold, was sold by Sir John Wollaston, knt., and others "the Commissioners trusted by severall ordinances of the Lords and Commons assembled in Parliament with the lands and possessions of the late archbishops and bishops for the sale thereof" to Sir John Evelyn, Bart., and he by deed dated 21st September, 1652, sold back the reversion to Chalkhill, Terry, and May, three fellows of the college, for the sum of £50.

In December, 1851, the college assigned the lease, which had been renewed by bishop Sumner for three lives in 1814, to the copyhold tenant, and he enfranchised the property. The six tofts, etc. comprised in the lease were found on that occasion to amount to one hundred and ninety-five acres, which were held by eight copies of Court roll.

To return to the family of Gerveys. Members of it held free tenements in the manor of Sutton in the time of Henry III. I exhibit No. 4, a grant by Henry

[a] Bishop Cooper died in 1594.

Woodlock, bishop of Winchester from 1305 to 1317, to William Gerveis (*sic*) and Cristina his wife, their heirs and assigns, of her first husband's [a] tenement in Ropley, rendering a chief rent of 13s. 4d. per annum, doing suit and service at the bishop's court, and giving 3s. to every new bishop *pro recognitione*, "knowledge money" it is called in other documents, and the same sum to the king on every avoidance of the see. The best cart-horse was seizable as a heriot on the death of either of the grantees, or of any one of their heirs. I set out these reservations as a fair example of the terms on which free tenements in the bishopric manor were held.

The deed has no date. The witnesses, Richard de Tystede,[b] William de Overtone, Thomas de Lemyngtone,[c] Nicholas de Ichene,[d] John de Tycheborne,[e] John de Thuddene,[f] and Hugh de Selerugge,[g] were mostly local people, and were probably free tenants doing suit and service at the Court at which the grant was made.

The bishop's seal of dignity in dark green wax is appended by a parchment strip. It is a pointed oval, $2\frac{3}{4}$ inches long, with the bishop in mass vestments standing under a canopy, with on either side of him the heads of St. Peter and St. Paul in sunk sexfoiled panels. Under St. Peter is the letter .ꝺ. and under St. Paul the ordinal II. Legend:

FRAT' : ꝺ€ИRIC€VS : D̄I : G€RA | WIИTOИI€ИSIS €PV̄S.

The counter seal is also a pointed oval $2\frac{3}{8}$ inches long (Plate XV. fig. 4). The device is a three storied panel or niche with (i) at the top, a half-length figure of Our Lady and Child, over (ii) half-length figures of St. Peter and St. Paul, with (iii) two similar half-length figures of bishops below, probably St. Swithun and St. Birinus. In base is bishop Henry kneeling in prayer. The legend is:

SIT : XPO : GRATVS : ꝺ€ИRICI : POИTIFIC€TVS.

On the Sunday [h] next after the Purification, 11 Edward II., this William Gerveys and wife settled one of their free tenements. They granted it (No. 15)

[a] Thomas de Manecrofte, whose surname is perpetuated in Great and Little Mancroft fields in the parish of Ropley.

[b] East and West Tisted are neighbouring parishes.

[c] Lymington, a farm in adjoining parish of Medstead.

[d] Itchen Stoke and Itchen Abbas are neighbouring parishes.

[e] Titchborne is an adjoining parish.

[f] Thedden, a place in the north of Alton.

[g] Soldridge, a farm in parish of Medstead.

[h] Deeds were often sealed on Sundays at that period, I suppose because witnesses were easy to get after morning mass.

to one Robert le Butillier,[a] and he regranted it to the settlors for their joint lives and the life of the survivor without impeachment of waste (*ita quod boscum in dictis tenementis existentem licite prosternere, vendere et assartare, vel assartata arrentare possint pro voluntate suâ*), remainder to William their son and the heirs of his body, remainder to Roger his brother and the heirs of his body, remainder to John his brother and the heirs of his body, remainder to the right heirs of William Gerveys.

Fourteen years later, in Michaelmas Term, 5 Edward III., a fine was levied to the above uses, with the addition of a remainder to a daughter named Isabel, who must have come into the world after the settlement.

William, the eldest son, having died without issue, Gerveys in 7 Edward III. granted another free tenement of his in Bighton, Alresford, and Winnall to his eldest surviving son Roger. The grant (No. 19) is dated at Bighton on the Sunday next after St. John Baptist's Day, 7 Edward III.

In 42 Edward III. Roger's eldest son and heir in tail, Andrew Gerveys, sold his life interest in the entailed estate and his reversion to other estates then held by his younger brother William, parson of Bentworth,[b] and by his stepmother Joan for their respective lives to William of Wykeham for a life annuity of £20.

I exhibit the deed of sale (No. 78). The seal is an antique gem, with the encircling legend Sigillum Andree Gerveys.

I also exhibit Wykeham's letter of attorney to receive seisin (No. 80). It is dated at Farnham, 18th December, 42 Edward III. The seal is a fair example of his *secretum* in brown wax.

In the following year Wykeham bought up Gerveys's annuity for a hundred marks. I exhibit the release (No. 80) as an example of fine bold writing. It is dated at Lambeth, 14th February, 43 Edward III. The attesting witnesses are Robert de Thorp[c] and John Knyvet,[d] justices; David de Wollore,[e] clerk; Roger de Kirketone,[f] Edmund de Chelreye, and Robert Beleknap, the king's serjeants.

[a] A chief rent of £25 a year was reserved, in order to insure Butillier's regranting the premises.

[b] He died in 1372, as his successor, Nicholas Danvers, was instituted 17th December in that year on the presentation of Sir William Melton, lord of the manor of Bentworth.—Wykeham, *Register*, i. 45.

[c] C. J. Common Pleas, 27th June, 1376, succeeded Wykeham as Chancellor 26th March, 1371; died 29th June, 1372.

[d] Justice of Common Pleas, 30th September, 1361; C. J. King's Bench, 29th October, 1365; Chancellor, 30th June, 1372, to 11th January, 1376-7.

[e] Perhaps of kin to a man of the same name who was Master of the Rolls in 1346; died 1370.

[f] Justice of Common Pleas in 46 Edward III.; died *circa* 1385.

The seal is perfect, circular oval, in red wax, identical with that appended to No. 78.

I exhibit Gerveys's acquittance for the hundred marks. It is dated at London on Thursday after St. Valentine's Day, 43 Edward III. The seal is the same as before.

It must have been, I presume, as a further consideration for this release that Wykeham inserted the name of Andrew Gerveys in the list of benefactors for whom, by Rubric XXIX. of his Statutes for Winchester College, masses were to be said daily in the college chapel.

William, the parson of Bentworth, died in 1372, as we have seen; and in 1376, when the stepmother was dead also, Wykeham conveyed the premises to feoffees of his own by deed dated at Farnham, 12th July, 49 Edward III.

The bishop's *secretum* appended to this deed is nearly perfect.

Sixteen years later, by deed dated 8th June, 15 Richard II., Wykeham made over his purchase to the warden and scholars of his college at Winchester by the description of "two messuages, a toft, three carucates of land, two acres of meadow, thirty acres of pasture, sixty acres of wood, ten pounds rent, and a rent of one pound of cummin, with the appurtenances, in Ropley, Sutton, Bighton, Drayton, Winnall and Medstead." The *secretum*, in red wax, though perfect, is a poor impression.

The warden and scholars' letter of attorney to receive seisin has the same date, and has appended to it a perfect example of their common seal in red wax (Plate XV. fig. 5).

When Wykeham bought the property he bought the live and dead stock as well; and this he now made over to the college by indenture dated on Sunday, the day of St. Simon and Jude, 21 Richard II., testifying that one Henry Knyghth on that day delivered to Augustin Welde, serjeant of Ropley, the live and dead stock on the farm, viz.: 7 horses, 2 of them unfit for work (*debiles*), 17 oxen, 2 bulls, 24 cows, 8 heifers, 8 calves, 3 sows: also 409 tegs (*multones*), 10 rams, 273 ewes, 178 lambs, 8 hoggetts, 4 geese, 24 capons, 1 cock, 6 hens, an iron fastened cart *cum toto apparatu*, viz. 6 collars, 5 pairs of traces, a cart saddle, 2 cart-ropes, and a new cart-ladder, a dung cart and some harness, viz. 6 headstalls, whereof 3 were of leather, 3 threshing sledges (*tribula*), a shovel, a "dung pyke," 5 ploughs, 2 ploughshares, 2 iron coulters, 3 iron "solropes," a winnowing fan, a sieve, 3 ryderones (rudders or screens), a prong, an oak table top with 2 pair of trestles, a "tabel dormond,"[a] 3 forms, a 4 gallon brass pot, an old brass posnet,

[a] A table dormant is a stationary piece of furniture as distinguished from one made of boards laid on trestles. See Chaucer, Gen. Prologue to C. P., 353.

2 vats made out of hogsheads, 2 keves,[a] 3 hogsheads of cider and 60 gallons more, 3 cheese vats, 3 pails, 5 cheese boards, a new "salting trow,"[b] a wooden "tonnel," a tub, an "opstander,"[c] an iron hooped bucket, a well rope, a "knedyng trow," a "molding borde," 8 harrows (*herciæ*), 4 hay racks (reckys[d]), 8 sheep racks, 6 "holryng reckys," 6 gallons of tar to dress sheep, 5 quarters of lime, 3 colhurdels, a 12 gallon tub.

In 50 Edward III. Roger Gerveys released his interest under the entail to Wykeham by deed (No. 94) dated at Bishop's Sutton. I exhibit it for the sake of his seal, which is a small traceried one with a shield charged with *two chevrons*, impaling *fretty and a quarter*.

I exhibit in this connection an indenture (No. 193) testifying that on the 12th of November, 6 Henry IV., Simon Membury, who was Wykeham's treasurer at Wolvesey, delivered to Master John Morys, warden of the new College of St. Mary in the Soke of Winchester, three hampers (*cophini*) containing twenty-seven evidences of title to the lands purchased of Roger Gerveys. Some of these evidences are on the table before us.

Membury's seal is a small one in red wax, bearing what may be a counting board flanked by his initials S M.

After Wykeham's death this Roger Gerveys went about saying that the release was executed by him under duress. Hence the next instrument (No. 104), which is a solemn declaration to the contrary expressed to be made by John de Campeden, archdeacon of Surrey, Thomas Warenner,[e] and John Ketene, precentor of St. Mary's, Southampton, and confirmed by Sir Thomas Skelton and Sir Walter Sandes, knts., John Skillyng and Richard Wallop, justices of the peace, Edward Condray, the High Sheriff, Nicholas Breye, William Overtone, and John Fromond, in the presence of John Letcombe, abbot of Hyde, and Gilbert Foster, mayor of Winchester; but in point of fact executed by John de Campeden only. It bears date at Winchester on the Monday after St. Luke, 6 Henry IV.

The parchment tags remain for nine seals, each inscribed with the name of the declarant, but only the first has had a seal affixed to it (Plate XV. fig. 6). It is a pointed oval in form, and represents St. Andrew holding his cross and a book,

[a] Fr. Cuve.

[b] "Trow" is Hampshire for "trough."

[c] Perhaps a stillion or cask stand.

[d] The open wooden framework or grating over a manger.

[e] Sir Thomas Warenner, knt., who was High Sheriff of Hants in 1394. He married Joan, a granddaughter of Agnes, Wykeham's aunt, and had two sons, Thomas and Reginald, who were cholars of Winchester College in 1394.

standing within an elaborate niche. This is supported by masonry pierced by a round-headed arch, under which kneels John de Campeden. The legend is:

Sigillū : iohis : de : ramp[eden··] archidiaconi : sur'.

The ends of the seal are unfortunately broken away.

We hear no more of Roger Gerveys and his grievance, but in 5 Henry V. John Gerveys, who was porter at St. Swithun's priory, and apparently heir in tail of the settlor, brought his action[a] against Warden Thurbern to recover possession of the settled estates. The defendant pleaded a lease (No. 110), which, in anticipation no doubt of John Gervays' claim, he had granted in 1 Henry V. with the consent of the fellows and scholars, of the manor of Ropley, and the possessions of the college in the parishes of Ropley, Bishop's Sutton, New Alresford, Drayton, Bighton, Medstead, and Winnall to Sir Thomas Wykeham, knt.; John Forest, clerk; John Wykeham, rector of Maplederham[b]; John Wykeham, rector of Crondall; John Bouke,[c] clerk; John Fromond, Richard Wallop, Henry Keswyk, and Robert Tychefeld for their lives and the life of the longest liver of them, at a peppercorn rent.

[a] The following pedigree is amongst the pleadings in this action:

William Gerveys = Cristina, widow of Thomas de Manecrofte

- William, d. unm. before 9 Ed. III.
- Roger = Alice
  - Andrew, d. s. p.
  - William, *capellanus* of Bentworth, d. s. p. in 1372
  - Maud, d. unm.
  - Cristina = — Tyghale
    - John Tyghale =
      - Roger Gerveys, m. 2ndly, Joan —, and had by her
        1. Isabel, a nun
        2. Roger, m. Bennet —, and d. s. p.
        3. William = Joan Lemyngtone
           - William, d. s. p. before 6 H. V.
           - John, *armiger*, porter of St. Swithun's Priory in 8 H. V.
        4. Nicholas, living in 8 Hen. V. and had issue.
        5. Thomas, d. s. p.
        6. Michael, d. s. p.
      - John Tyghale, living in 8 H. V.
        - John Tyghale
    - William Tyghale, d. s. p.
- John, d. s. p.
- Isabel, d. s. p.

[b] A tithing in the parish of Buriton, near Petersfield.

[c] Warden of New College 1403-1429.

The seal of the college at the foot of this lease is in excellent preservation.

Issue was joined on the question whether the warden was or was not in possession of the lands in question on the 20th April, 6 Henry V., the date of the writ; and a special jury was summoned in the quindene of Trinity to try it, *xij tam milites quam alios liberos et legitimos homines de visu de Suttone et Roppelegh, quorum quilibet habeat centum solidatas terræ tenementorum vel redditûs per annum ad minus.*

These are the names of the panel:

William Brokes.	William Tystede.
William Overtone.	John Hamptone.
Nicholas Beynton.[a]	John Upham.
Richard Tystede.	Edward atte Rych.
John Kyrkeby.	John atte Peke.
Lucas Ponynges.[b]	John Benet of Hursley.[c]
Walter Haywode.	John Goolde.
John Harryes.	John Baloue.
Thomas Wayte.	John Sylvere.

At this stage the action was compromised at the desire of Cardinal Beaufort, who is described as *fundator et patronus dicti collegii* in the deed of compromise, the plaintiff binding himself by a statute merchant to execute a release to the college on being paid £20.

I exhibit the statute merchant (No. 118), which has appended to it an excellent example of the seal provided for recognisances of debtors at Southampton under the statute of Acton Burnell *de Mercatoribus* of 1283 and the *statutum mercatorum* of 1285.

This seal is circular, $1\frac{7}{8}$ inch in diameter, with the bust of the king rising from a walled town, with a leopard on either side the head. The legend is:

S' ꝺWARDI RꝺG ANGLꝺ PRꝺCOGNICONIB DꝺBITOR APVD SVTHT.

On the back is the clerk's seal, which is circular, 1 inch in diameter, with the device of a single masted ship[d] (Plate XV. fig. 7).

Mr. W. H. St. John Hope has kindly supplied the descriptions of the seals.

[a] Name preserved in "Boyne Wood," South Medstead.

[b] Grandson of Sir Luke de Ponynges, whose will, dated 5th June, 1376, is entered in Wykeham's Register, iii. 143A.

[c] Thus distinguished from a contemporary, John Benet of Botley, a relation of Wykeham.

[d] I may refer here to our late Fellow, Mr. Charles Spencer Perceval's communications on the subject of these seals generally in *Proceedings*, 2d. S. vii. 107, and x. 253, and to Mr. W. H. St. John Hope's notes, *ib.* xv. 61.

INLAID GOLD ORNAMENTS IN THE BRITISH MUSEUM (FULL SIZE).

Published by the Society of Antiquaries of London, 1902.

IX.—*On some points in the History of Inlaid Jewellery.* *By* O. M. Dalton, *Esq.*, *M.A., F.S.A.*

Read 20th March, 1902.

The Early Teutonic jewellery ornamented with garnets and glass pastes, frequently known as *Orfévrerie Cloisonnée*, has been so extensively discussed that it may appear almost superfluous to draw attention to it once more. But the publication in the following pages of objects now in the British Museum will, it is hoped, supply fresh links in the chain of evidence connecting it with the East; for it is now universally agreed that this kind of jewellery entered Europe from Asia, and it is with examples of early date from that continent that we are here chiefly concerned. The principal aim of this Paper is to make better known the armlet from the Oxus, and the reliquary from Afghanistan reproduced by figures 1 and 2 of the accompanying coloured plate (Plate XVI.). But in considering these objects it has been difficult to avoid speculation as to the origin of the style of ornamentation which they represent. The early date and pronounced Persepolitan style of the armlet bring us nearer to Egypt than anything hitherto discovered in the East, and in view of these facts, we are tempted to revive the question whether the *Cloisonnée* jewellery of Central Asia can have been introduced from the banks of the Nile. The opposite theory, which regards this jewellery as indigenous in Asia, has probably the balance of opinion in its favour; but in the present state of our knowledge, its acceptance would appear to involve something of a dilemma. For on this view the great antiquity of the earliest Egyptian jewels in this style would compel us either to prove that their Eastern prototypes were in existence some three thousand years before Christ; or to suppose two independent centres of invention, one in Asia, the other in Africa, thus severing Egypt from all connection with the development of the art on the neighbouring continent. Time may remove the difficulties incident to these

alternatives, but at present neither of them is easy of acceptance. The perfection of the famous inlaid jewels of Dashur (figs. 1 and 1a), which belong to the twelfth dynasty (third millennium, B.C.), would make it necessary to assume from their rude Asiatic forerunners an almost fabulous antiquity. But so far as I am aware, neither Babylonia nor Assyria, Central Asia, or India, have as yet produced anything in this style of so remote a date; and though the early archæology of China is at present so little known that it may have many surprises in store, as matters now stand it is a legitimate inference that the Far East could hardly have exercised an artistic influence towards the West thirty centuries before the beginning of our era. The theory which derives enamelling from Asia, does not involve the same dilemma, because this was not one of the characteristic arts of Ancient Egypt.

Fig. 1. Inlaid gold *naos* from Dashur. After de Morgan.

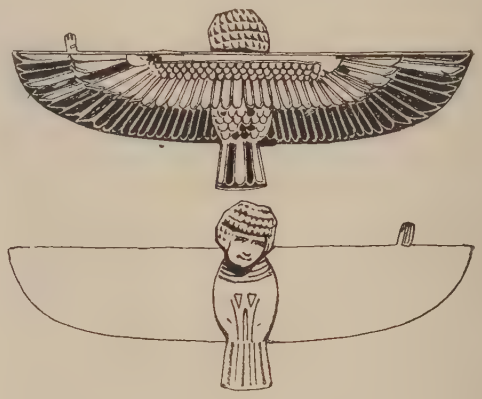


Fig. 1a. Inlaid "soul" from Dashur, in the possessson of F. G. Hilton-Price, Esq.

It is a matter of common knowledge that brooches, buckles, sword-hilts, rings, and other objects of gold and bronze ornamented with flat slices of stone, usually garnet, or of glass pastes in imitation of it, have been found in great numbers in the cemeteries of the principal Teutonic tribes which succeeded to the inheritance of the Roman Empire. From England they can be traced back through France and Spain, Germany and Scandinavia, Northern Italy and Hungary to Southern Russia and the Caucasus. That the objects found in the countries furthest toward the East are earlier than those from the West is obvious from many indications, among others from the increasing degradation of zoomorphic designs which is apparent as we proceed from the Caucasus toward our own country. It is indeed universally accepted that of all the Teutonic tribes the

Goths were the first to make use of a new style of jewellery, and that they became acquainted with it during their sojourn to the north of the Black Sea from the third to the end of the fourth century A.D. By the close of the fourth century the new fashion had already superseded the enamels of the early Roman Empire, and by the fifth it had spread right across Europe, its presence in Merovingian France being attested by the splendid ornaments discovered in the tomb of Childeric I. (died 481), at Tournai in the middle of the seventeenth century.[a] In our own country, which was among the last to receive the new fashion, this branch of the goldsmith's art reached its highest perfection in the seventh century, and is best represented by the finds in the county of Kent. After this period it rapidly declined throughout Europe, and by Carlovingian times had practically disappeared. As far as this continent is concerned, Southern Russia is the most important district which we have to consider, for it is here that this jewellery made its first appearance. With its subsequent development in Europe we are not directly concerned, but two small objects of European origin, both now in the British Museum, have been reproduced to illustrate the class (Plate XVI. figs. 4 and 5), one a Visigothic buckle from Spain, the other a brooch in the form of a fish, probably from the Rhine.[b] Before proceeding to describe the objects under discussion it will be well to define the terminology to be employed and to touch upon their more prominent characteristics.

[a] Cochet, *Le tombeau de Childéric Ier*, Paris, 1859. The objects found in this tomb are described in all books dealing with Teutonic jewellery. The sword is finely reproduced in Bock, *Kleinodien des heiligen Römischen Reichs*, pl. xlvi., and in Labarte, *Histoire des Arts industriels au Moyen age*, vol. i.

[b] Among the numerous accounts of Teutonic inlaid jewellery, especially with regard to its passage across Europe, may be mentioned the following: C. de Linas, *Origines de l'Orfèvrerie Cloisonnée*, and *L'Orfèvrerie Mérovingienne*; J. de Baye, *Origine orientale de l'Orfèvrerie Cloisonnée et son introduction en Occident par les Goths*, *Compte Rendu du congrès international d'archéologie prehistorique et d'anthropologie*, Moscow, 1892, i. 353 ff.; other papers by the same author in various archæological publications; Henszlmann, *L'âge du fer, étude sur l'art gothique*, *Compte Rendu*, as above (Buda Pesth, 1876); F. de Lasteyrie, *Histoire de l'Orfèvrerie* (Paris, 1875), 65 ff.; E. Molinier, *Histoire des arts appliques a l'industrie*, vol. ii. *L'Orfèvrerie*, chapter I. M. de Lasteyrie's account has been reproduced with additional illustrations by M. A. Odobesco in his monumental work on the Treasure of Petrossa. Those unfamiliar with the general appearance of the typical inlaid jewellery of Western Europe may consult J. Y. Akerman, *Pagan Saxondom* (London, 1855); the early volumes of *Archaeologia Cantiana*; and H. Baudot, *Mémoire sur les sépultures des Barbares de l'époque Mérovingienne en Bourgogne* (Paris, 1860) in which volumes numerous coloured plates will be found. Many of the fine examples from the Caucasus now at St. Petersburg are figured by Kondakoff Tolstoi and Reinach, *Antiquités de la Russie Méridionale* (Paris, 1892).

The general term which will be used in this paper is "inlaid jewellery," which, although far from adequate as a description, may be provisionally adopted as a matter of convenience. Following a French usage, I had previously employed the word "incrustation," but this has been abandoned, as critics of judgment and experience have pointed out that the word would probably lead to a confusion of ideas. Various alternatives were at the same time proposed, some of which introduced terms descriptive of the art of mosaic, with which, especially the Roman *opus sectile*, this jewellery has technically points of resemblance. But an objection to this change is that as the goldsmiths usually relied for their effect upon the vivid contrast between the colour of the stones and that of the gold, and as the gold usually divides each individual stone from its neighbour, any such definition would ignore the constant and important part which is played by the intersecting metal divisions. A further objection, which equally applies to the usual French term *orfèvrerie cloisonnée*, is that a second variety of inlaid jewellery which has for centuries been united with the cloisonné type and has always been discussed in relation to it by the numerous writers on this subject, would not be covered by the definition. These two varieties which we shall shortly describe as cloisonné- and plate-inlaying respectively, are so indissolubly associated in the literature of the subject, that even were there no other grounds for maintaining the connection, it would be desirable to treat them together for the convenience of students alone.

By inlaying we here mean the ornamentation of the surface of an object with small slices of coloured stone or glass paste, applied without the intervention of heat; the process is thus essentially distinct from that of enamelling, to which, however, in some of its varieties it often bears a superficial resemblance. The ground to which the stones are attached, frequently by means of a mastic, is usually though not always flat, the finished jewel offering one or more plane surfaces which produce their effect upon the eye, not by varied relief or beauty of form, but by strong contrasts of colour. It is by its appeal, often by violent means, to the sense of colour rather than that of form, that inlaying is so unfortunately distinguished from Greek and from the better class of Roman goldsmiths' work; but when we condemn it as barbaric, we must remember that the objects on which we base our judgment are usually among the latest and most degraded specimens of a very ancient art. The base is made of metal, gold for choice, or in default of this, silver or gilt bronze; but we may notice in passing that inlaying has been applied in various countries and at different times to all kinds of materials. Gems have been inlaid in ivory, wood, onyx and jade;

wood in wood, and stone in stone; but the coloristic principle is the same from the inlaid tiles of Persia and Spain, to the *pietra dura* of Florence, or the brass and tortoiseshell of Boulle. Of the two varieties of inlaid jewellery already mentioned, the first and most important, to which the term *orfèvrerie Cloisonnée* strictly applies, is that most frequently found among objects from Teutonic graves in Europe. Here the slices of stone or paste are inserted in contiguous cells applied as in the case of cloisonné enamel, and the name *cloisonné-inlaying* will therefore be appropriated to it, though the English words inlaid cell-work or cell-inlaying would have answered the purpose had the French term not been consecrated by long usage. In the second and less common method, which is best represented in Eastern Europe by the fibulæ of Petrossa, and in the West by the votive crown of the Visigothic King Svinthila (fig. 2), found in 1858 at Guarrazar, near Toledo, and now in the *Armeria Reale* at Madrid,[a] the gold surface is itself pierced with holes of various shapes disposed in such a way as to form a diaper or simple design; these holes are then filled with stones fixed in mastic and supported at the back by a second unperforated plate of gold. Speaking generally, the difference between this method and the preceding is analogous to that between plate-tracery in Gothic architecture and the bar-tracery which succeeded it. The architectural analogy is perhaps close enough to justify the description of this second method as *plate-inlaying*, and it is quite possible that in jewellery as in architecture, the simpler may be the earlier form. The point of transition between the two would be reached in cases where the holes cut in the upper plate are exceedingly numerous and occupy as much of the surface as the metal, so that the general effect approximates to that of work carried out by means of applied cloisons or partitions. It would seem reasonable to suppose that a goldsmith who had reached this stage might be naturally led to the discovery that

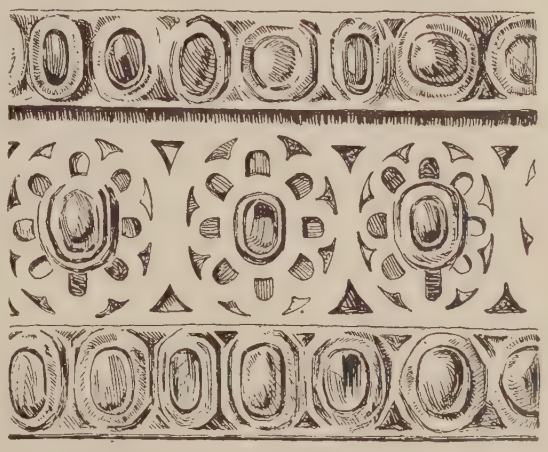


Fig. 2. Section of the Crown of the Visigothic King Svinthila.

[a] Bock, *Kleinodien*, as above, pl. 37; F. de Lasteyrie, *Le Trésor de Guarrazar* (Paris, 1860); Molinier, *L'Orfèvrerie*, 12. The various crowns of Guarrazar, most of which are in the Cluny Museum at Paris, are mentioned in all books treating of barbaric jewellery.

work of finer quality and greater possibilities might be produced by abandoning the continuous sheet of metal and cutting it into strips placed edgeways between the stones. But examples of plate-inlaying, as above described, do not appear to have been found in Egypt, where, on this theory, they might be expected to occur; though objects such as the cedar axe-haft of the eighteenth dynasty in the Cairo Museum [a] covered with a plate of gold in which carnelians and other stones are

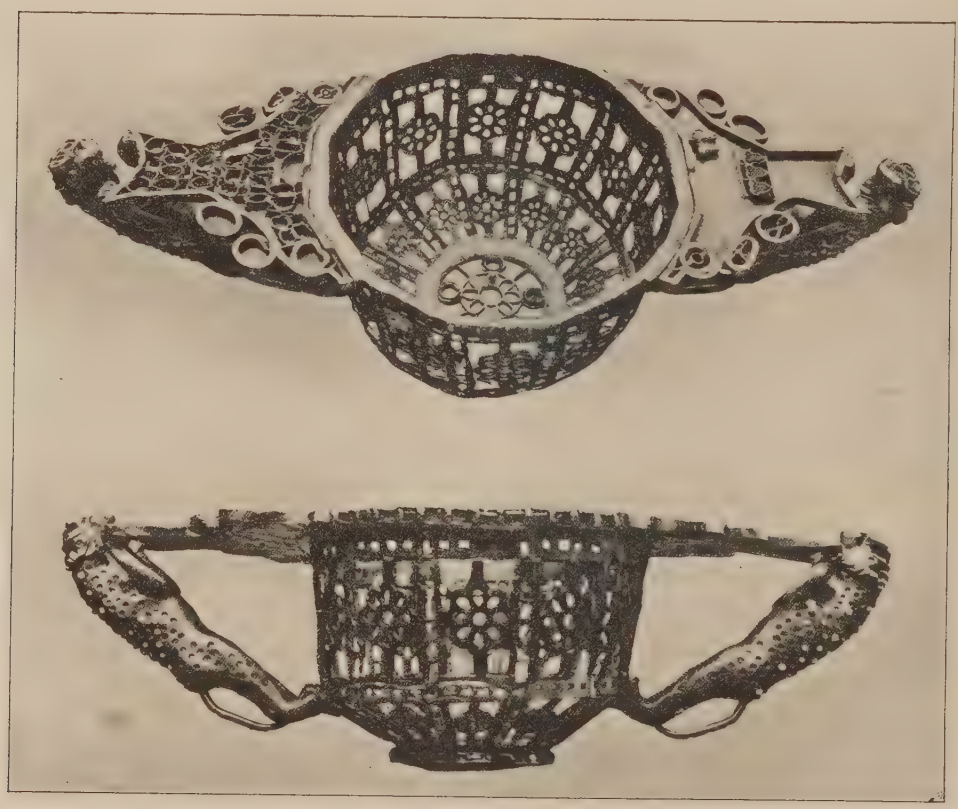


Fig. 3. Openwork vessels from Petrossa. After Odobesco, *Le Trésor de Pétrossa.*

inlaid so as to form hieroglyphs would seem to indicate a similar process: here, however, the inlaid plate has apparently no metal support at the back, but rests directly on the wooden haft. It is possible that further discoveries in Egypt and the East may finally decide whether cloisonné- and plate-inlay have been technically and historically related from the earliest times, or whether their

[a] De Linas, *Origines de l'Orfèvrerie Cloisonnée*, i. 26.

association only dates from the early centuries of our era when they are found together in objects connected with the south of Russia.

Another variety of inlaying may be mentioned in this place, though we are not directly concerned with it. In this the metal is entirely in openwork, like the leading of an old-fashioned window, so that when the stones are inserted, the appearance is much the same on both sides. It thus resembles cell-work without a background, but it is necessarily stronger and coarser, the cells not being built up out of small strips, but formed from a continuous plate of metal. This style, which we shall call openwork inlay, is consequently less suited for jewels than for objects of a larger size, such as dishes and vessels, in the manufacture of which it has been used in the East both in ancient and modern times (fig. 3). Having now defined the meaning of the terms which it will be convenient to employ, we will proceed to the examination of the actual objects, without delaying to describe the discoveries by which the distribution of inlaid jewellery within the limits of Europe has been established, or to summarise the theories to which they have given rise. These tasks have already been performed and it is unnecessary to repeat them. There is, however, one author who deserves especial mention in this place, the French scholar, Charles de Linas, who devoted years of his life to the study of inlaid jewellery, and whose various publications, especially his *Origines de l'Orfèvrerie Cloisonnée*, though sometimes diffuse, are full of useful and suggestive facts. All those who have laboured after him in the same field, whether they agree with his conclusions or not, owe a lasting debt to his industry and insight.

In 1877 important discoveries of antiquities were made at a site variously reported as a ford near Takht-i-Kawât (Kuâd), between Khulm and Kabadian, and a spot a stage to the north of the Oxus on the route to Samarkand, and about two days' journey from Kunduz.[a] They brought to light some 1,500 gold and silver coins, and a number of statuettes, plaques, rings, and ornaments of the same metals, the whole having probably been buried in the banks of the Oxus itself or of a tributary stream, and washed away at some time by a flood. If the objects were all deposited on a single occasion, we must assume that they constituted a family treasure acquired during a long series of years, for they are probably,

[a] Cunningham, on "Relics from ancient Persia in gold silver and copper," in *Journal of the Asiatic Society of Bengal*, vol. 50, pt. 1 (1881) 151 ff., 52, pt. 1 (1883) 64 ff., 258 ff. Kondakoff, Tolstoi and Reinach, *Antiquités de la Russie Méridionale* (Paris, 1892), 284 ff. The place would thus be not far removed from the trade-route from India to the Caspian and Black Seas, which passed from Cabul to Balkh and thence to the Oxus.

like the coins, of different dates. Among these last were darics, pieces struck by the Satraps Tiribazus, Pharnabazus, Tiridates and Pharnaspes, tetradrachms of Athens, coins of Akanthus in Macedonia, Aspendus, Byzantium, and Tarsus, of Alexander the Great (about 200), Andragoras, Pixodarus of Caria, Lysimachus of Thrace, Seleukus Nikator, Antiochus I., II., III., Diodotus and Euthydemus. There were no Parthian coins, and none of Eukratides the contemporary of Mithridates I., the products of whose mints are not at all uncommon. The coins thus cover a period ranging between the end of the fifth or the beginning of the fourth century, and about 180 B.C., and these dates accord in general with the nature of the other objects, with which, however, are a few things of later period. It is very unfortunate that the circumstances attending the discoveries are imperfectly known; nevertheless, the style of their component parts is sufficiently marked to enable us to draw conclusions of considerable importance. It is perhaps useless to speculate as to the manner in which this treasure, commonly called the Treasure of the Oxus, reached this remote part of Asia. It has been suggested that the greater part was hidden by some prince or chief who went to join the army of Euthydemus against Antiochus the Great, and never returned to recover his property.

Among the earlier and finer objects composing the treasure, are two massive gold penannular rings[a] with winged monsters at the ends and incurved backs, the form suggesting that they were intended to be held in the hand and not worn upon the wrist. Their shape and elaborate execution would ill adapt them for actual wear, though simpler armlets[b] of this shape have been found at Amathus in Cyprus, and on various other sites; they may have been the funeral ornaments of some great personage or else objects of a ceremonial nature. The monuments show that rings were used ceremonially in Assyria and Persia, and it may be remembered that annular and penannular rings with the same peculiarities of form have been found at various bronze-age sites in Europe, especially at Morges and Thonon on the Lake of Geneva; while other prehistoric examples are preserved in the museums of Brunswick and Turin.[c] They have always been regarded as

[a] Now in the British Museum and the Victoria and Albert Museum respectively. First published by Mr. (now Sir George) Birdwood in *The Illustrated London News* soon after their discovery.

[b] In the British Museum.

[c] Desor et Favre, *Le bel âge du bronze en Suisse*, c. xi. p. 24; Chantre, *L'âge du bronze*, i. 173 ff.; Lindenschmit, *Alterthümer unserer heidnischen Vorzeit*, iv. pl. 43; R. Monro, *The Lake Dwellings of Europe* (London, 1890), 531; G. and A. de Mortillet, *Le Musée préhistorique*, pl. lxxxix. No. 1069 (after Gastaldi, *Frammenti di paletnologia Italiana*, pl. xii. fig. 1); Odobesco, *Le Tresor de Pétrossa*, 453 ff., where the ceremonial use of rings is discussed at some length.

ceremonial objects, and are usually known as *Schwurringe* it having been suggested that they are analogous to the *armilla sacra* which the ancient Germans held in their hands when about to swear a solemn oath. Now the affinities of the Oxus armlets are unmistakable. They are Persepolitan, and such work can only have been produced under the Achaemenid Kings of the fourth or even the fifth century B.C. The modelling of the monsters, which, though not strictly gryphons, may, for the sake of brevity, be described by that name, is exactly that rendered so familiar to us on the carved reliefs of Persepolis (fig 4), and a glance at any illustrated work in which those sculptures are reproduced,[a] will at once reveal the identity of treatment. This is especially marked in the case of the limbs, wings, and horns ; while more distant analogies from earlier Asiatic art may be seen among the carved slabs from the Assyrian palaces in the British Museum. The importance of this early origin lies in the certainty which it affords that inlaid cloisonné jewellery was being made at this remote date, if not in Persia, at least in Bactria under the strongest Persepolitan influence. The presence in the Oxus Treasure of other objects of undoubted Iranian origin, as well as the general considerations already adduced, are in favour of Persia itself. Hitherto the earliest Persian jewel ornamented with inlaid stones, has been the gold girdle-plate of the early Sassanian period found at Wolfsheim (fig 16), which is an example of plate-inlaying and not of cloisonné-work in the proper sense; but we now have a monument made in Persia ornamented with inlay in the Egyptian manner, some six hundred years earlier in date than the Wolfsheim jewel. We cannot definitely assert that the inspiration came ultimately from Egypt, for similar cloisonné jewels from intermediate countries have yet to be discovered. Assyria has so far proved barren, and it has still to be proved that jewellery of purely native manufacture in this style ever existed. But there is ground for the belief that inlaid ornaments

Fig. 4. Scene representing a mythological Combat, at Persepolis. After Flandin et Coste.

[a] *e.g.* Flandin et Coste, *Voyage en Perse*, iii. pls. 123, 151, 152, 157, 164; Perrot and Chipiez, *History of Art in Persia*, i. 145 (English edition). For the mythological combat, see Dieulafoy, *L'art antique de la Perse*, iii. 81.

not very different in kind from Egyptian originals may have been introduced into the Assyrian Empire as early as the ninth century B.C., and that if native craftsmen failed to produce similar work, it was not for want of accessible models. These may have lacked the fine quality of the best Egyptian models, but they would be sufficiently attractive to invite imitation, and it is not impossible that at the time of Sargon and his successors, similar work may have been executed in the country.[a]

Fig. 5. Ivory carving from a throne, formerly gilt and inlaid with lapis lazuli, from Nimrûd. In the British Museum.

The discovery by Sir Henry Layard of the well-known inlaid ivories at Nimrûd provide substantial proof of this early importation. In a chamber in the North West Palace, that is to say the earliest of the three palaces in the city, built by Ashur-nasir-pal (885—860 B.C.), he discovered a number of finely-carved panels in which, among subjects of an Asiatic character, are reproduced

[a] For various speculations on the nature of Assyrian jewellery at this period, see de Linas, *Origines*, i. 44-72.

many purely Egyptian designs. Among these are, for instance, an Egyptian woman holding a lotus flower, and standing beneath a winged disc; Egyptian personages seated on inlaid thrones; a carving from a throne with two gryphons (fig. 5), and a small panel with the raised and inlaid figure of a beetle, the type of the Egyptian god Khepera (fig. 6). Now the inlaid parts of these carvings are cut into imbrications and fine cells reserved in the ivory, the cavities having been originally filled with lapis lazuli and the parts remaining in relief gilded. The whole character of the work shows how close and intimate the connection of Egypt and Assyria must have been at this early time, yet they are not purely Egyptian, but made by imitators of Egyptian models.[a] Whether or not these imitators were Phœnicians is not material to our present purpose; the important

Fig. 6. Inlaid figure of a beetle from Nimrûd. In the British Museum.

point is that their work supplies a possible link bringing the Oxus armlet into connection with the inlaid pectorals and other Egyptian jewels,[b] now preserved at

[a] For other early work in ivory from Praeneste, Chiusi, and Veii, see W. Helbig, in *Annali dell' Instituto di Corrispondenza Archeologica*, xlix. (1877) 398 ff., and li. (1879) 5 ff.; *Monumenti inediti* of the same Institute, x. pl. 38 and figs. 1 and 1a, and xi. pl. ii. figs. 1-6; R. Garrucci, *Archaeologia*, xli. (1867) 187 ff. For remarks upon such early ivories, see also A. J. Evans, *Journal of the Anthropological Institute of Great Britain and Ireland*, xxx. (1900) 200. Examples of the hybrid art to which the Nimrûd ivories belong will be found in Perrot and Chipiez, *History of Art in Phœnicia and its Dependencies*, ii. 338 ff. and 402 (London, 1885).

[b] J. De Morgan, *Fouilles à Dahchour* (Vienna, 1895), pl. xv. xvi. xix-xxi. Perrot and Chipiez, *History of Art in Ancient Egypt* (English edition, London, 1883), ii 381, and figs. 311-313.

Cairo and in the great European Museums. For when we consider what the appearance of these ivories must have been when the gilding and the inlay were intact, it is easy to believe that they were imitations in another material of the class of inlaid gold ornaments of the twelfth and nineteenth dynasties best represented by the Dashûr jewels (fig. 1), by the pectoral of Queen Aah-hetep at Cairo, and by that of Kha-em-uas, son of Ramses II. in the Louvre; the close imitation of Egyptian designs and cartouches, as well as the employment of a characteristic Egyptian technique, place some such a connection beyond all doubt. Nor is there anything surprising in such a relationship. The artistic influence of the Nile Valley had been carried far and wide over the Eastern Mediterranean from very remote times, and we can trace the fashion of inlaying in the Aegean as early as the Mycenæan Age. Gold rings and other objects of that period inlaid with blue pastes simulating lapis lazuli have been found in the islands, and we learn from the discovery at Enkomi in Cyprus of a pectoral inlaid with pastes that articles of Egyptian manufacture were also imported. The period to which the Nimrûd ivories belong, intervening as it did between the close of the Mycenæan Age and the dawn of archaic classical art in the sixth century B.C., was marked by great commercial activity and by the diffusion throughout the Mediterranean of a hybrid art, in which Egyptian and Assyrian traditions were blended. To these influences we might fairly assign the introduction of inlaid work into the Euphrates Valley and Persia, as well as into the Italian peninsula, where it has left traces of its presence in an ivory sheath inlaid with amber from a pre-Etruscan tomb at Veii (fig. 7). From Italy it would appear to have reached Hallstadt, where it is illustrated by the great ivory sword-hilts inlaid with amber in a similar fashion (fig. 8). Although the amber doubtless came from the North, we may fairly assume, in view of the early dissemination of inlaying in the Mediterranean, that the technique came in from the South, and that the craftsmen of Central Europe in the early iron age learned to apply amber to a new style of ornament. The fashion does not appear to have persisted, and did not survive in the La

Fig. 7. Ivory sheath inlaid with amber, from Veii. From *Archaeologia*, vol. xli. pl. vi.

Fig. 8. Ivory sword hilt inlaid with amber, from Hallstadt. From a cast.

Tène period; it is a remarkable fact that Central Europe, which ultimately received this art from the distant shores of the Black Sea, should have failed to encourage its development when it penetrated the heart of the continent a thousand years earlier by a more direct route.

We have thus obtained the following data in support of a hypothesis connecting the inlaid jewellery of Egypt with that of Persia. The Egyptian jewels are related to gilt inlaid ivories found at Nimrûd, and probably dating from the ninth century B.C., while the Persepolitan armlet, which is decorated in the Egyptian way, is the product of an art which proceeded from that of Assyria and everywhere betrays its influence. Even were the ivories the only representatives of inlaid work known in Assyria, they might almost have suggested the local manufacture of jewels in the same style; but, as has been already suggested, actual jewels of Egyptian origin, or copies of them, must surely have been known in that country during the period of the early empire when Egyptian influence was strong, and may well have been imitated by local workmen. Once introduced into the Euphrates Valley, an art which appealed so strongly to the Eastern love of splendour, would naturally spread over a wide area, and survive to the times of the Persian Empire. The Oxus armlets would thus provide a link between Persia and the more ancient monarchies to the West.

It is in dealing with the ancient history of inlaid jewellery that the principal difficulties are encountered. For the central part of the genealogy connecting Persia with Southern Russia is less dependent on speculation, while the later descent from Southern Russia through Hungary, and the countries lying further to the West has already been so amply demonstrated by various writers that it needs no further evidence. It is now necessary to take up the thread of the inquiry at the intermediate point, and follow this branch of the jeweller's art from Persia to the banks of the Don. We shall then retrace our steps and discuss some interesting examples of plate-inlay, dating from the earliest centuries of our era, one of which, a reliquary hitherto unpublished, was found in a Buddhist tope near Jelalabad in Afghanistan. It will then be recalled that both plate and cloisonné-inlaying are found united in objects belonging to a treasure ascribed to the fourth century A.D., and closely connected with Southern Russia. In order to perform the first of these tasks, it will now be necessary to describe the Oxus armlets in greater detail.

They are massive gold, perhaps solid at the back but tubular at the ends, the metal being everywhere sufficiently thick to admit of the cutting of the rather

deep cavities seen on the flanks, legs, heads, horns, and tails of the gryphons. The wings, which are flat on the inner sides, are covered on the outer with thin applied cells imitating feathers, while the necks are ornamented with similar cells forming an imbricated design. Down the breast and along the back runs a broad sunk band divided transversely by applied partitions forming broken lines, between which were set flat pieces of stone cut to the required shape. Only one of these now remains in position in the well-protected place between the wings. The presence of the broken line, itself a feature of early Teutonic inlaid work, should be especially remarked, for not the least remarkable point in the long history of inlaying is the persistence of ornamental details through wanderings which occupied many hundreds of years and extended over thousands of miles. The tails of the gryphons, which are square (fig. 9) form a continuation of the band down the back, though the rectangular cells into which each are divided are not in applied work, but formed by partitions reserved in the metal, the same method being adopted on both of the horns. The cup-shaped terminations of the horns are very characteristic features of Assyrian and Persepolitan Art, and may be noticed on the reliefs from the Assyrian palaces in the British Museum, and on the sculptures of Persepolis, where also the similarity in the treatment of the whole monster, especially the modelling of the limbs, is at once apparent.[a] We may draw special attention here to the manner of ornamenting the flanks by means of sunk cavities intended to receive inlaid stones, for as we shall shortly see, this method forms an important link connecting the armlet with the work of the countries whose art we have next to describe. It may be noticed that on the thighs of the gryphons these cavities are so arranged as to form a pattern composed of a circular dot between two comma-like lines. This pattern[b] is commonly found upon barbaric ornaments of the seventh to eighth centuries in Southern Russia, Hungary, Lombardy, and Western Europe, where it occurs upon the flat links of the chains from which the crown of Svinthila is suspended.

Fig. 9. Back view of gryphon on gold armlet from the Oxus. (Plate XVI. fig. 1.)

[a] The cup-like terminations of the horns are most noticeable in the case of the monsters without bird-like heads at the corners of the Takht of the Royal Tomb (Perrot and Chipiez, i. 219). In other examples of the mythological combat, what looks like a horn with expanded end, may be simply part of the mane which the assailant grasps to secure a firmer hold.

[b] Riegl, *Die Spatrömische Kunstindustrie aus den Funden in Oesterreich-Ungarn* (Vienna, 1901), 204.

It is also seen on the sixth century *transennæ* of the Cathedral of Ravenna, and is supposed to have been first employed in pierced marble-work. But when we find this line-and-point motive upon objects from Persepolis dating from the fourth or fifth century B.C., and also upon gold ornaments from Siberia and South Russia, which as we shall see are technically allied to them, it is at least worth consideration whether, like the method of inlaying which it so early accompanies, it may not also have originated in the East.

The nature of the stones with which these armlets were set must now be discussed, for although the South Kensington example had lost all its inlay, while in that preserved in the British Museum only one complete slice in the back and a fragment in the right breast of one gryphon remained in their places, this was fortunately sufficient to decide the question. This armlet has been examined by Professor A. H. Church, who has submitted the fragment to a careful analysis, the result of which may be given here in his own words[a]: "I have now completed, so far as the very limited supply of material has allowed, my testing of the tiny bit of inlay from the gold armlet from the Oxus treasure.

"First of all, I ought to say that the fragment is not paste or glass of any kind, and has not been fused *in situ*. Nor has it been faceted, but the angular faces have been produced by chipping not by grinding.

"I tested the fragment for phosphoric acid, and found it; but I could detect no copper, to which element turquoise owes it colour. But there are other blue mineral phosphates. So I turned my attention to the best known of these, namely odontolite, or fossil turquoise, which is really mammoth ivory coloured blue naturally by vivianite or iron phosphate. But this substance dissolves easily in acids while your fragment was unattacked (turquoise likewise dissolves). The only other blue native phosphate which one might expect to encounter is *lazulite*, a mineral which occurs in several European localities, but has also been recognised in several Indian localities, as at Culabgarh. It is a 'hydrous aluminium phosphate,' but, unlike turquoise, is practically insoluble in acids and contains no copper. I cannot affirm that your inlay is certainly lazulite, but it behaves before the blowpipe exactly like this species, contains phosphoric acid, and, like lazulite, is hardly acted on by acids. There may be, and probably are, other blue phosphatic minerals still to be recognised, but I do not think you will be far wrong if you describe the inlay as 'probably lazulite, a blue aluminium phosphate resembling turquoise in hardness but of rather greater density.'"

[a] Letter to Mr. C. H. Read.

This result is interesting, for it suggests that the goldsmiths may have chosen this stone in preference to turquoise, because it more closely resembled the lapis lazuli of the earliest models known to them. In later times the turquoise has always been the favourite stone in Persia, and the mines of Nishapur in Khorassan had a very wide reputation in West Central Asia. Lazulite is of a fairly brilliant blue, whereas turquoise has a decided greenish tint, and this, under the circumstances, may have been sufficient to explain the preference shown for the former. The point may be of trifling importance, but it is worth mentioning, for such evidence as it affords tends to support rather than to invalidate the Egyptian origin of inlaid jewellery. The Oxus treasure contains another penannular armlet (Plate XVI. fig. 3), of smaller size, which would seem to be later in date. Its ends terminate in rams' heads, the necks being inlaid with turquoises in applied cells divided by partitions forming broken lines. In style and execution it is closely connected with the objects from the tumuli of Southern Siberia to which we must now pass.

The gold ornaments found in the tombs in the steppes of Western Siberia[a] form a class distinguished by great individuality of treatment. They have been discovered at various times since the days of Peter the Great probably for the most part about the upper waters of the Obi, and the majority of those now preserved in the Imperial Museum of the Hermitage have been in St. Petersburg for a great number of years. The early Russian settlers in Siberia found the exploration of tumuli a profitable occupation which they pursued with so much energy during the early part of the eighteenth century that few interments were left undisturbed. So systematic was the spoliation that a modern excavator is held to be lucky if in several hundred tumuli he finds a single undisturbed interment. The treasures yielded by the burial mounds thus came in such numbers into the local markets that they are said to have depreciated the local value of gold.[b] But though the abuse was checked by Imperial edicts,[c] no

[a] On these ornaments, see de Linas, *Origines, &c.* ii.; Kondakoff Tolstoi and Reinach, *Antiquités de la Russie Méridionale*, 364 ff.; Odobesco, *Le Trésor de Pétrossa*, pt. i. 230.

[b] J. R. Aspelin, *Compte Rendu of the International Congress of Anthropology and Prehistoric Archaeology, Stockholm*, 1876, 555-6; W. Radloff, *Aus Sibirien* (Leipzig, 1884), ii. 76; de Linas, *Origines &c.* ii. 193 ff.; Kondakoff, Tolstoi and Reinach, as above, 368 ff.

[c] W. Radloff, in *Materials for Russian Archaeology*, Part 15 (1893), *Appendix*, 53, published by the Imperial Archaeological Commission, St. Petersburg (Russian). In this appendix four of the plates from Witsen's *Noorden Ost Tartarye*, representing Siberian antiquities are reproduced.

records of the circumstances attending individual discoveries have hitherto been available, and little is therefore known of the history of particular objects or of the other objects in baser metal with which they were associated.[a] It is, however, practically certain that these gold ornaments belong to mounds of the iron age, for they frequently represent animals of monstrous and fantastic form which are entirely absent among the remains from bronze-age tombs in the same area.[b] As to the precise time when the use of iron became common, there is no satisfactory evidence; but a comparison of objects of the iron age from the Altai Steppes with others from the Scythian tombs north of the Black Sea seems to show that the new metal was known as early in Siberia as in Southern Russia,[c] while the earliest Chinese records mention no tribes using bronze weapons. To discuss the identity of the people who made these inlaid jewels would compel us to enter into vexed questions on which the opinions of ethnologists are not unanimous. They were probably for the most part nomadic horsemen, and have been conjecturally identified with the Massagetae, whose partiality to gold ornaments was remarked by Herodotus.[d]

These Siberian antiquities are largely composed of bracelets, diadems and ornamental plaques of gold bearing representations both of the fauna of Central and Western Asia and also of monstrous animal forms. The plaques were most likely applied both to the costume of men and to the trappings of their horses, the fondness of the inhabitants of the Steppes for this kind of ornament being well known from very ancient times. The greater part of these treasures probably belonged to chiefs and important persons who were able to obtain abundant supplies of the precious metals. The Ural and Altai Mountains were not the only sources from which gold was derived;[e] Upper Tibet has been described by medieval and modern

[a] M. de Kieseritzky, Keeper of the Department of Greek and Scythian Antiquities at the Hermitage, St. Petersburg, will shortly issue a profusely illustrated catalogue of the Siberian ornaments, in which much fresh information is promised.

[b] W. Radloff, *Aus Sibirien*, ii. 84 and 127.

[c] J. R. Aspelin, *Antiquités du Nord Finno-Ougrien* (translation G. Biaudet, Helsingfors, 1877) 46-7.

[d] On the question of the early inhabitants of the Siberian Steppes, see Radloff, *Aus Sibirien*, ii. 129 ff.; Kondakoff, Tolstoi and Reinach, *Antiquités de la Russie Méridionale*, Part iii. 323 ff.; Klements, *Antiquities of the Minusinsk Museum*, 65 ff., Tomsk, 1886 (Russian).

[e] A. Lappo-Danilevsky in *Materials for Russian Archaeology*, Part 13 (1894) p. 14 (Russian); N. Popoff, *V. Tatischeff and his times* (Moscow, 1861), 563-4; Herodotus, Book I. 215, iii. 98, 102; Strabo xi. 8, 6.

travellers as highly auriferous region; and a Russian traveller of the eighteenth century records that in his day Bokhara and Turkestan were so rich in gold and silver that the inhabitants only used what they found on or near the surface of the ground. The most characteristic feature of these Siberian ornaments lies, as has been already remarked, in the sinking in various parts of the design, for instance on the flanks of the animals of small triangular, circular, or pear-shaped cavities in which turquoises and garnets are embedded. We have seen that this brings them into connection with the Persepolitan armlets in which we noticed an identical style of decoration, and the procedure may well have been introduced from Persia, the influence of which country spread far beyond its own borders in very early times. As an illustration of this we may draw attention to a barbaric gold ornament (fig. 10) representing the lion-headed gryphon of Persian art, which formed part of the Oxus treasure. This monster was also adopted by the Greeks, and a good example of it may be seen on the famous fourth-century vase of Xenophantos, found near Kertch in 1836. On this vase is painted a scene representing barbarians hunting gryphons both of the lion and eagle-headed varieties, and the appended names of the hunters are principally Persian.[a] If the above view of the origin of embedding is correct, the process may represent a crude attempt to enhance a sculptural effect, and to accentuate by a contrast of colour the characteristic conventional treatment of animal joints and muscles seen on Persepolitan and Assyrian sculptures. In the hands of barbaric goldsmiths it would rapidly overpass these anatomical limits in proportion as love of mere splendour predominated over a higher artistic sense, and would finally run wild over the surface of the ornament, as is the case in some of the Siberian plaques which appear to be sprinkled with turquoises in a fashion which confuses rather than assists the eye. It may be, however, as De Linas among others supposed, that this method of embedding originated in Asia, and that its presence on the Oxus armlets is due to a reflex influence from Scythian art. The new catalogue of the Hermitage collections will, it may be hoped, place us in possession of important evidence on this point. Meanwhile it may be

Fig. 10. Gold plaque from the Oxus Treasure, representing a lion-headed gryphon.

[a] *Compte Rendu de la Commission Impériale archéologique*, 1866, 139 ff. *Atlas*, pl. iv.

remarked that even if this peculiar form of embedding should prove to be of Asiatic invention, it would not follow that cloisonné inlaying had the same origin.

It now becomes necessary to mention one or two of these Siberian objects, a comparison of which may assist in determining the date of the whole class.

Fig. 11. Gold plaque from Siberia, in the Museum of the Hermitage, St. Petersburg. From an electrotype in the Victoria and Albert Museum, South Kensington.

There is in the Hermitage at St. Petersburg a gold plaque (fig. 11),[a] in the form of a great bird of prey holding a wild goat in its claws. The neck, breast, and upper part of the wings of this bird are covered with cells, in which there

[a] De Linas, *Origines*, ii. 196; Kondakoff, Tolstoi and Reinach, as above, 379. This bird was reproduced in *Archaeologia* as early as 1773, see vol. ii. pl. xv., but the figure is very inaccurate.

are said to be traces of red stones or pastes; while in the body and in the horns of the goat are sunk cavities of the usual style which were apparently once filled with turquoises, such a combination of red and blue stones being not uncommon in these Siberian plaques. The goat is executed in a style resembling that of other animals represented in a well-known treasure[a] from South Russia, and to this fact we owe one of the few clues which we have to the age of the Siberian and South Russian ornaments. This treasure was discovered in 1864 at Novotcherkask on the Don, and contained, amongst other objects, two gold armlets, three small boxes and a collar embedded with turquoises in the familiar Siberian style, a gold statuette of Eros playing on a pipe, and a crown or tiara of beaten gold set with cabochon stones, the upper rim of which was surmounted by a row of deer (fig. 12), and branches of smilax, while the front was set with a bust of an empress carved in pale amethyst or calcedony. The bust, which must have originally been made for another object, is usually held to be late Roman work of about the third century A.D., and thus gives an approximate date for the treasure, a date which would be strikingly confirmed if the coins of Augustus, Nero, and Galba obtained in Tobolsk in the eighteenth century, were really taken from Siberian tombs.[b] The little birds upon the upper rim are ornamented in the same way as the large bird of prey which has just been described, and from the lower edge hang a number of pendants of earlier date in the style of those found in the later Greek ornaments from Kertch, showing that the crown was probably made in Southern Russia. From the large bird of prey and the Novotcherkask treasure we therefore learn that this curious Siberian style of jewellery, in which embedding and cloisonné inlaying are combined, was practised to the west of the Ural Mountains in the first centuries of our era, and in Siberia itself almost certainly earlier. For among the Siberian objects are examples with representations of birds and monsters, in which the style of the cloisons is so closely allied to that seen on the Oxus armlet,

Fig. 12. Deer from the top of the gold crown from Novotcherkask, in the Museum of the Hermitage, St. Petersburg. After Kondakoff.

[a] De Linas, *Origines*, ii. 131 ff. and accompanying plates; *Compte Rendu de la Commission Impériale Archéologique* (St. Petersburg, 1864), 20; de Lasteyrie, *Hist. de l'orfevrerie*, 67-8; Kondakoff, Tolstoi and Reinach, as above, 488 f.

[b] Figured in Witsen, *Noord en Ost Tartarye*, 4th plate of antiquities; reproduced by W. Radloff; in *Materials for Russian Archaeology*, Part 15 (1894), 134. See also Kondakoff, Tolstoi and Reinach, as above, 367.

that they cannot be far removed in point of date. Particularly remarkable in this respect are a figure of a bird holding a swan in its claws,[a] and a magnificent

Fig. 13. Top of a hookah inlaid with turquoises from Yarkand. In the India Museum, South Kensington.

gold penannular collar, the ends of which terminate in winged monsters.[b] It is clear that in Persia, and in the countries beyond it to the north-east, the art of

[a] Kondakoff, Tolstoi and Reinach, as above, 381, fig. 334.

[b] This collar is, I believe, still unpublished.

inlaying was practised in great perfection at any rate as early as the fourth century B.C., and if Persia was the earlier centre of manufacture, the fine inlaid work of modern Central Asia, of which our museums contain a few examples (fig. 13), but which is splendidly represented in the collection of Oriental arms in the Hermitage at St. Petersburg, is of Persian descent. We may safely follow de Linas in assuming that Bactria played a prominent part in the manufacture of jewellery; and this country being inhabited by a cultivated people, and at the same time a Satrapy of the Persian Empire was particularly qualified to transmit Persian influence to the barbaric tribes north of the Oxus. In support of the Persian claim, we may again refer to the fact that the winged monsters of Siberian art are almost certainly immigrants from Hither Asia, and it has been conjectured that cultural influences from this region penetrated as far as the Yenisei even before iron was known.[a] Now if Persia transmitted these monsters to Central Asia several centuries before Christ, she may well have also introduced the cloisonné work with which we suppose her to have been long acquainted. I am aware that the style of the Siberian plaques, notably in the grouping of the animals, the confusion of plastic and pictorial methods, and the general ignorance of perspective, has been compared to that of early Chinese art,[b] and that, other things being equal, the identical arguments just adduced in favour of Persia might be used in support of a Chinese claim. But whereas we have in the Oxus armlets Persian inlaid jewels which may go back as far as the fifth century B.C., from China we have nothing of equal age. Those who know China best are not disposed to lay much stress upon her possible artistic influence on countries to the West very long before the Christian era; and even in far later times the initiative in important artistic departures in the Middle Kingdom is held to have come from outside. For instance, cloisonné enamelling was introduced from western, presumably Byzantine, sources towards the close of the Yuen Dynasty, for the name of Chih-chêng (1341-1367), is found underneath the foot of cloisonné pieces which may be accepted as contemporary with that emperor. The art was officially adopted in the reign of Ching-tai (1450-1456), who belongs to the succeeding Ming Dynasty.[c]

The enquiry has thus led us through lands civilized and barbarous to our anticipated goal in the country known to the Greeks as Scythia, whose coasts had

[a] Aspelin, *Antiquités du Nord Finno-Ougrien*, translated by G. Biaudet, 47.

[b] Kondakoff, Tolstoi and Reinach, as above, 408.

[c] Dr. S. W. Bushell, *Oriental Ceramic Art*, Section 8, 286

been occupied for many centuries by colonists of Hellenic descent. The question therefore naturally arises, what was the relation, if any, of inlaying to the Greek goldsmith's art? We have already had occasion to remark that the inlaid work of ancient Egypt influenced Mycenaean jewellery, and that in the centuries which followed the Mycenaean age, ivories inlaid with amber in imitation of the Egytian technique were produced in Northern Italy and Upper Austria. But Hallstadt seems to be the extreme limit which this fashion attained in Central Europe before the Christian Era; it does not appear to have found favour with the craftsmen of the La Tène and late Celtic periods, or to have made any further progress towards the north and west; while the amber-inlaid ivories themselves are but rude and debased examples of the sumptuous art from which they claim descent. Nor did the inlayer's skill appeal to the Greek of classical times as it had appealed to the men of the Mycenaean age, and we may take it that Hellenic art of the best period had little or nothing to do with inlaid jewellery as we understand it. To the fine Greek sense of beauty it would perhaps have appeared meretricious, and traces of it among Hellenic jewels are extremely rare. But it does appear to have obtained entrance into one district inhabited by Greeks, and that the very region to the north of the Black Sea with which we have already been concerned. The bezel of a gold ring, and a disc attached to a gold pin discovered in Greek tombs of the late third century B.C., in the Taman Peninsula[a] are inlaid with glass pastes divided by fine gold cloisons forming rosettes, while another ring has an inscription executed in a similar style but filled with enamel. We know further that inlaying on a larger scale was commonly practised at Kertch, the decorated wooden sarcophagi found in the tombs being inlaid with figures in ivory. But although inlaid jewellery was thus known to Greek goldsmiths, the examples made by them are so few in number that the art can hardly have been widely disseminated. It is true that the treasures of Petrossa and Nagy Szent Miklos,[b] which are assigned to the culture-area of the Greek settlements, were ornamented with inlaid stones, but they are both several centuries later than the ring and pin from the Taman Peninsula and reveal the predominance of Persian and barbaric influences. There is thus a long interval

[a] *Compte Rendu*, 1880, 52-3, and *Atlas*, pl. i. figs. 13 and 17. For the enamelled ring, see *ibid*, 77, and *Atlas*, pl. iii., fig. 7.

[b] For the formerly inlaid objects in the Nagy Szent-Miklos treasure, see J. Hampel, *Der Goldfund von Nagy-Szent-Miklos* (Buda-Pesth, 1885), 104; the treasure is also figured in the same author's work in Hungarian, *A Regibb Kozepkor, &c.* (Buda-Pesth, 1894). For the treasure of Petrossa, see below.

unillustrated by archæological discovery; but it may well be that the fashion of inlaying, once introduced into the Greek sphere of influence on the Euxine, lingered on through the period of artistic decline, becoming more and more barbaric, but perhaps receiving an occasional stimulus through the importation of fresh examples from Persia or Scythia. The late date of the Taman grave and the absence of similar inlaid work in the earlier tombs which have been excavated, would seem to show that the settlers did not bring the art with them, but learned it after their arrival in their new homes; and the similar absence of a continuous series of inland ornaments among the Græco-Scythian jewellery of the same early period would tend to prove that the Greeks neither taught the fashion of inlaying to their northern neighbours nor learned it from them. We might be tempted indeed to trace some such early Greek influence on the inlaid work of Scythia if the treasure of Novotcherkask (*see* above) is, as some have supposed, earlier than the Christian era. But most archæologists assign to this treasure a considerably later date; and even should it be more ancient that it is usually considered, it would not prove that the Greeks introduced inlaying into the Scythian area. For as we have seen, Siberian ornaments are in existence closely allied in style to the Oxus armlets and independent of Greek influence. There is, in fact, good reason to conjecture that inlaid jewellery first gained a permanent foothold in European Scythia, not from the South, but from the East, and that it travelled from the Oxus to the banks of the Don, across the Obi and the Ural Mountains; the evidence for the proof or disproof of this hypothesis lies in St. Petersburg, and it is from Russian archæologists that we may expect a solution of the problem. The appearance of inlaying among the later Greek jewellery of the Taman Peninsula, may, with greater probability be attributed to the more direct influence of Persia, coming from the shores of the Black or Caspian Seas, or across the Caucasus. Numerous objects of Persian origin, or in imitation of the Persian style, are found in the Greek tombs of Kertch, notably cylinders[a] engraved in intaglio with Greek as well as Persian subjects; and it is quite possible that the Greeks imitated Oriental inlaid jewels just as they reproduced the Asiatic cylinder. This direct Persian influence was continuous, and is very marked in the case of the Petrossa treasure.

[a] *Antiquités du Bosphore Cimmérien*, pl. xvi. figs. 2, 3, 5, 6; *Compte Rendu*, 1881, pp. 81-88, and *Atlas*, pl. v. figs. 6-7, 8-9; 1882-8, *Atlas*, pl. v. fig. 3; Kondakoff, Tolstoi and Reinach, as above, p. 67. Objects showing a direct Egyptian influence have also been found in the tombs of Kertch (*Compte Rendu*, 1880, 74-75), and it is possible that the Greek inlaid work, especially the wooden sarcophagi, may have owed something to this source.

We must now retrace our steps and consider a group of ornaments inlaid in another style, which we have denominated plate-inlaying. The apparent rarity of this style among Siberian finds would seem to show that it never made headway north of Persia and Afghanistan, and that it became popular in Iran later than the cloisonné variety. Future discoveries may prove both these suppositions erroneous; they are admittedly based upon negative arguments, and must be regarded in the light of provisional hypotheses.

The first of these examples of plate inlaying is a reliquary (Plate XVI. fig. 2), discovered in 1879 by Mr. William Simpson in the Ahin Posh Tope (Stûpa) near Jelalabad.[a] This stûpa, which was about 80 feet in diameter, was composed of large water-worn boulders embedded in clay, within an outer shell of large stones and slates. The reliquary lay in a small cell or cist about 15 inches square, built upon the level of the ground and composed of slates laid in horizontal courses. It was surrounded by two or three handfuls of ashes and 18 gold coins, and contained two more gold coins with several fragments of a brown substance, which has been examined by Professor Church, and thus described by him:

"On heating the small fragment of brown substance from the Indian reliquary it gave off an aromatic or resinous odour and became nearly black but did not diminish in bulk. The residue on further heating became nearly white. On pouring on to this residue a few drops of nitric acid it gave off a little carbonic acid gas, and nearly completely dissolved when subsequently warmed. The solution contained lime and phosphoric acid. The conclusion that I draw from these tests is that the substance in question may be a fragment of bone which has been saturated with some resinous substance. I cannot recognise anything akin to bony structure under the microscope, however, and so my deduction from the tests applied still needs confirmation. It might turn out that the osseous constituents were merely bits of the same cement used to fix the stones in their cavities on the reliquary. In many places in India, lime being rare, shells, both fresh-water and marine, are burnt to yield it for many purposes. There is some phosphate, though very little, in such lime. Its powder makes with some resins a firmer and stronger cement than the resins alone. I merely mention this as a point not to be ignored in any conclusion based on the detection of phosphoric acid in the particle you gave me. My view is that bone ash was 'indicated' but not proved." It is therefore possible, but by no means certain, that these fragments are the relics over which the tope was erected.

[a] *Proceedings of the Asiatic Society of Bengal*, 1879, 77-79.

The casket, which is $3\frac{7}{8}$ inches long, is in the form of an octagonal prism, having at each end a pearled border, and a large loop for the cord by which it was suspended round the neck. It is opened by drawing out or pushing in one end, the moveable portion sliding into the body of the box and not covering it like a cap; the same method of closing recurs in another cylindrical box of plain gold found with Indo-Scythian coins at Manikyala in the Punjab, and now also in the British Museum. The six surfaces of the prism are pierced with holes, alternately oval and leaf-shaped, originally inlaid with almandine garnets and leaf-shaped pieces of pale grey-green stone, described by Professor Church as *Bowenite*, a variety of serpentine chiefly worked in the Safid Koh Range to the south of Jelalabad, and still used in the Punjab for making knife and dagger handles, and in mosaic work. At each end is a design formed of a central garnet within a circle of six hearts, which were almost certainly once filled with the same green stones. Had the heart-shaped perforations been eight in number it might safely have been assumed that this design was intended to represent the Buddhist lotus (padma), for this flower is commonly found on relic boxes or upon the tiles placed over the cists in which relics were deposited. The lotus flowers impressed upon tiles from Sagarwa, in the Terai of Nepal,[a] are very conventionally treated, a deep depression, usually circular, marking the centre of each leaf and giving the whole an appearance not unlike the present design. The garnets on the reliquary are still all in their places; but of the leaf-shaped pieces of serpentine only one remains, the empty spaces from which the others have fallen revealing the manner in which the box was made. It was double, a space of about $\frac{1}{8}$th inch separating the inner cylinder of plain gold from the perforated and inlaid outer case. The exterior of the inner cylinder thus formed a support for the matrix of resinous gum, and in this the stones which filled the apertures were fixed; the reliquary is therefore an example of the plate-inlaying which has been described above. The safety of the garnets seems to be explained by their being cut of a larger size than the holes in which they were set and by the gold having been rubbed over their edges, while the leaf-shaped stones only just fitted their apertures.

The coins discovered with the reliquary, and now in the British Museum, were described by Dr. Hoernle while they were still in India.[b] Seventeen of them belong to three kings of the Indo-Scythian dynasty, viz. ten to Hima

[a] Archaeological Survey of India, *Report on a tour of exploration of the antiquities of the Tarai, Nepal, the region of Kapilavastu, in* 1899, by Babu Purna Chandra Mukherji, with pref. by Mr. V. Smith.

[b] *Proceedings Asiatic Society of Bengal*, 1879, 122 ff.

Kadphises (c. 30-78 A.D.), six to Kaniṣka (Ḱanerki) (c. 85-106 A.D.), and one to Huviṣka (Hverki) (c. 111-142 A.D.). Three are Roman, one of Domitian (81-96 A.D.), one of Trajan (98-117 A.D.), and one of Hadrian (117-138), the last-mentioned coin having on the obverse the bust of Julia Sabina, who died 137 A.D. Of the two contained in the reliquary one was of Hima Kadphises (Hoernle, p. 123, No. 9, and pl. II. and III.) and one of Kaniṣka (p. 131, No. 13). All the coins, with the exception of one of Kadphises, are in very good preservation and have suffered little from wear.

The presence of these coins enables us to approximately determine the age of the casket. The gold of which they are made is very soft, and would soon show signs of attrition if they were in constant circulation. The absence of any coins of Vāsudeva, the successor of Huviṣka, or of any of the kings who followed him, suggests that the treasure was deposited during Huviṣka's reign. For the coins of Vāsudeva are more numerous and better known than those of any of the Indo-Scythian kings, and have been found in other topes. His successor also minted without intermission, so that unless we suppose that it was customary to deposit in topes only coins which were no longer current, an usage for which there would appear to be no evidence, we may place the date of the tope at about the middle of the second century. In view of the regular communication existing at that time between Parthia and the West, the presence of Roman coins would offer no difficulty, and there is no reason why a coin of Hadrian should not have been in Afghanistan before 150 A.D. The form of the reliquary differs from that of the caskets commonly found in Buddhist monuments. The loops at the ends show that it was intended to be worn round the neck, and it may therefore be assumed that it was not made expressly for interment, and may be a few years older than the tope. We may perhaps conjecture that the reliquary was the personal property of some prince, and that it was worn by him as a receptacle for some venerated object. It may have been then placed by him during his lifetime, or by others after his death, in the stûpa in which it has now been discovered after the lapse of seventeen hundred years. We seem to trace similar objects suspended from cords across the shoulders of Kings and Bodhisattvas (fig. 14) on the contemporary sculptures from the same district, formerly called Græco-Buddhist, but now named, after the district in which they are found, Gandhâra sculptures.

Fig. 14. Sculpture from Gandhâra in the British Museum.

Analogous objects, or else beads of exceptional size, are also to be seen on the still earlier sculptures from the railings of the Great Tope at Bharhût, which probably dates from the third century B.C. (fig. 15). In some cases, as the illustration will show, a prism with the pearled borders at the ends is very clearly represented, though the large loops for attachment, which form a feature of the reliquary, are not in evidence. We are, therefore, perhaps justified in assuming that the form was familiar in India long before the Ahin Posh Tope was erected, though it may well have been originally introduced from the Nearer East. There are indeed general considerations which might almost persuade us that both the form of the reliquary and the art in which it is ornamented are of Indian origin. The inlaying of rubies and garnets in gold rings and other jewels has always been practised by the goldsmiths of Northern India, whence it probably passed to Burmah and Siam, countries where it is equally popular. And when we remember the traditional splendour of the Indian princes in the most remote times, their great wealth, and the unlimited supply of rubies, garnets, and other precious stones at their command, we shall scarcely be inclined to deny that inlaid jewels might well have been manufactured further east than Afghanistan at a much earlier date than that at which the reliquary was made. We have also to remember that it was from India, from Asoka's kingdom of Maghada, that the Buddhist missionaries carried their faith, and with it doubtless many of the arts of the advanced Gangetic civilisation, into the district of Gandhâra two and a half centuries before Christ. But such considerations are outweighed not only by what we already know of the early connection of Persia with inlaid jewellery, but also by the teaching of history as to the influence of that country upon India. It must not be forgotten that even before the time of Asoka, Persia had powerfully affected the art of the peninsula, and that any wave of influence which accompanied Buddhism towards the West may have been merely a reflux to an original source. Gandhâra especially was from early days under direct western, and especially Persian, influence. It was incorporated in the great empire of Achaemenides, and the Gandharioi sent a contingent to the army of Xerxes. It was on the highway of commerce between Hither Asia and India, and the invading host of Alexander passed through its territories. On the death of the Conqueror, it fell to the lot of the Seleucidae, who were in alliance with the Indian monarchy of Magadha. Early in the second century B.C., it was seized by the Greek princes of Bactria,

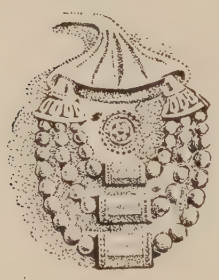


Fig. 15. Detail from the Sculptures of Bharût. After Cunningham.

who had revolted from the Seleucidae in 248 B.C., and who were pushed to the south by the impact of the Scythian tribes. The Greeks maintained their power until 20 B.C., when the Kuṣana princes, so called from one branch of the great Scythian people, the *Yueh-chi* or *Yueh-ti*, established their power in the country until in their turn they were driven south by the Hiong-Nu. But through the whole of this period, this part of Asia never ceased to be permeated by the influence of the western civilisations. The Gandhâra sculptures show many traces of Hellenistic and Roman influence, and even the christianity of the early Roman Empire is held to have left its mark upon them. The testimony of art and archæology in fact reveal a continuous trend of influence from west to east, and motives derived from Persian architecture may be traced not only in Gandhâra, but much further east in the Buddhist ruins of Sanchi in Bhopal, and of Amarâvatî on the Kistna. But in addition to the evidence of art or history, the coinage of the district furnishes abundant proof of the close connection which always existed between Gandhâra and the West.[a] The coins of the Achaemenid kings circulated in the Punjab; while before 322 B.C. Athenian money had arrived in the course of commerce and was imitated in the local mints. Coins further show that Parthian influence on the various Scythian dynasties was continuous, while an Indo-Parthian dynasty reigned in Kandahar and Seistan, the best known member of which, Gondophares (the first year of whose reign was 21 A.D.), has left an inscription at Takht-i-Bahi. Coins of the Roman Empire found their way in great numbers, not only into the north, but also into the south of India; and finally there was a close intercourse between later Kuṣana kings and Sassanian Persia. It will be seen that of all the influences exerted on India, of which we have any record, that of Persia was the most immediate and unbroken. After the extension of the power of the Arsakides (Parthians) in the first century B.C., this influence was especially strong. It seems probable that the Parthians, and not the early Seleucid monarchs, were the principal carriers of classical influences into Gandhâra, for it is in their time that the sculptures reach their highest perfection,[b] and that Iranian names and divinities are seen upon the coins. But there are other proofs of a more concrete nature, which tend to show that inlaying came into Afghanistan from Iran. In 1870 there was discovered at Wolfsheim, near Mayence, a gold object, apparently part of the decoration of a girdle (fig 16).

[a] E. J. Rapson, *Indian Coins*, vol. ii. of the *Grundriss der Indo-Arischen Philologie und Altertumskunde* (*Encyclopœdia of Indo-Aryan Research*), 3 and 4.

[b] J. Burgess, *The Gandhâra Sculptures* (London, 1899), 6, 7.

ornamented by plate-inlaying with almandine garnets in a style almost precisely similar to that of the reliquary from Ahin Posh. Punched on the plain gold back was the name *Artaschshater* (Ardeshir) in Pehlevi characters of an early form, suggesting that the person referred to can be no other than the first Sassanian King of that name (d. A.D. 238). The importance of this buckle was at once recognised, for its form, unlike that of Teutonic types, confirmed its Persian origin. Its occurrence so very far away from the country of its birth is ingeniously explained by Herr von Cohausen,[a] who suggested that it formed part of the treasure of Alexander Severus when he was assassinated near

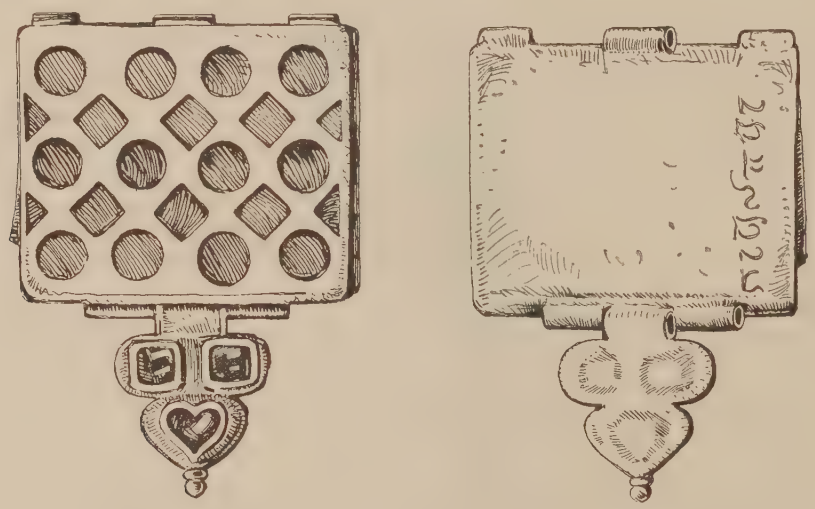


Fig. 16. Gold girdle-ornament of Sassanian work inlaid with garnets.
After Von Cohausen.

Mayence in 235 A.D. It will be remembered that Severus conducted a victorious campaign against Ardeshir, and it is not unreasonable to suppose that this jewel was amongst the spoils taken from the vanquished king. As long as no contemporary Oriental monument was known to exist, it was still possible to dispute the authenticity of the girdle-plate by supposing the inscription to have been placed upon an article of Western manufacture by a Persian mercenary in the Roman service.[b] But it is here that the importance of the Ahin Posh reliquary

[a] *Annalen des Vereins für Nassauische Alterthumskunde und Geschichtsforschung* (Wiesbaden, 1873), 9 and plate i, fig. 3. The Wolfsheim ornament is also figured and discussed by de Linas, *Origines*, &c. i. 5 and pl. i.; and Molinier, *Histoire des arts*, &c. *L'Orfèvrerie*, iv. 15.

[b] Molinier, as above footnote.

becomes manifest. In it we have an example of the same kind of work, which, from the conditions of its discovery, cannot possibly have been influenced by Teutonic art. Its existence not only renders the Oriental origin of the Wolfsheim jewel unassailable, but also considerably strengthens the view of de Linas with regard to certain parts of the Petrossa treasure, to which we shall shortly have occasion to refer. It further makes it extremely probable that jewellery of a similar kind was made in Persia before the accession of the Sassanian dynasty; for if the date assigned to the Ahin Posh Tope is correct, and inlaying was really introduced into Gandhâra from the Persian side, then it is clear that Iranian goldsmiths must have been producing work of this description in Parthian times. Plate-inlaying, like cloisonné-inlaying, may have existed in ancient Egypt[a] and if so it would have also crossed the Euphrates, and have been practised at the Achaemenid Empire. Evidence in proof of this may exist which is unfortunately unknown to me; but from the facts to which I am limited by my restricted knowledge I do not feel able to venture more than a guess. There are several possible conclusions as to the origin of this style of work: that it started in Egypt and was thence transmitted to Mesopotamia and Persia; that it originated in Persia; or in India; or that it was introduced into India and Persia from Central Asia. We require more evidence than that at present available before the question can be finally decided.

A link must now be sought to bring these Persian jewels into connection with the examples of plate-inlaying made in barbaric Europe, such, for example, as the votive crown of the Visigothic King of Svinthila (fig. 2), to which reference has already been made. This link is provided by the famous treasure of Petrossa,[b] found in 1837 near the Wallachian village of that name, and now preserved, though in a sadly mutilated condition, in the Museum at Bucharest. Several of the objects composing this treasure are inlaid with garnets and other stones, and in some cases both plate and cell-inlaying are simultaneously employed. The plate-inlaid objects are three fibulæ in the shape of birds, and a larger ornament, also in the form of a bird, intended to be worn either as a pectoral or as a

[a] See above.

[b] The bibliography of this treasure is now very large. The best account is to be found in the large work by M. A. Odobesco entitled *Le Trésor de Petrossa*, in which the earlier books and treatises are mentioned. There is a monograph upon it by F. Bock in the *Mittheilungen des K.K. Central Commission zur Erforschung und Erhaltung der Baudenkmale, &c.* (Vienna, 1868); it was described for the Arundel Society by R. H. Soden-Smith in 1869, and is discussed by Labarte in his *Histoire des Arts Industriels*, by de Linas, *Origines de l'Orfèvrerie Cloisonnée* and *Orfèvrerie Mérovingienne*, *and* Venturi, *Storia dell' Arte Italiana*, ii. 5ff.

decoration for the head (fig. 17). The heads and breasts of the birds are made of thin plates of gold, pierced to receive drop-shaped garnets, the lower parts being ornamented with the same stones set in cells. The treasure contains three other inlaid objects of the highest interest, viz. a gorget (fig. 18), and two polygonal vessels with handles (fig. 2). The first is a very elaborate example of plate-inlaying, for the leaf and heart-shaped apertures intended to contain the stones are very numerous and close together, so that the whole in a perfect state would almost produce the effect of cloisonné work. The polygonal vessels were once the finest examples of open-work inlaying in existence, but the thief who stole and mutilated the treasure robbed them of most of the crystals and coloured gems with which they were set. Their original appearance was, however, placed on record soon after their discovery, and they have been reproduced in colours, as they once appeared, by M. Odobesco, the principal historian of the treasure. We need not enter here into the discussion to which the peculiar features of the treasure of Petrossa have given rise. All authorities agree that the objects of which it is composed must have been imported into Roumania (part of the ancient Dacia) from Southern Russia, because some of them are evidently the products of Mix-hellenic art, and could only have been made in a district like that in the neighbourhood of the Pontic Settlements of the Euxine littoral, where the tradition of the older Greek goldsmiths' art still lingered on after the beginning of the Christian era. But it has been debated whether the treasure is homogeneous, or whether it is composed of elements drawn from different countries. M. Odobesco is in favour of unity, and has ably set forth the arguments on which his opinion is based.[a] He does not deny that Oriental influence is present, but he

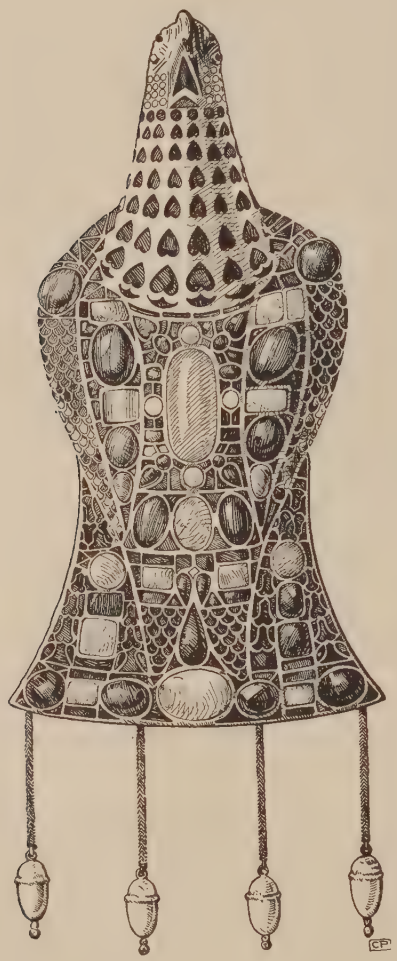


Fig. 17. Inlaid gold ornament from Petrossa. After Odobesco.

[a] *Le Trésor de Pétrossa*, part iii. 6.

thinks that the treasure was made in Europe, possibly by Greek goldsmiths, to the order of the Goths.

De Linas and other more recent writers are inclined to lay rather greater stress on the manifest Persian analogies presented by the treasure. They compare the inlaid fibulæ of Petrossa with the Wolfsheim girdle-plate, and point out that the open-work vessels of Petrossa are identical in style with the dish of Chosroes I. (531-579) in the *Cabinet des Médailles* at Paris, which has in the centre a crystal cameo in which the Sassanian King is represented, and of which the Persian origin is beyond dispute. For our present purpose the actual spot in which the treasure of Petrossa was manufactured is only of secondary interest. The important point is that the examples of inlaid jewellery which it contains are products of an art which reached South-eastern Europe directly or indirectly from Persia, for, as we have seen, plate-inlaying was practised in that country at an earlier date than that assigned by any authorities to the objects found at Petrossa. This treasure, though parts of it may be earlier, can hardly be later than the third quarter of the fourth century. At that time the Huns drove the Goths out of Russia, and it is held that the treasure was carried away by the fugitives, perhaps by their King Athanaric, who ultimately died at Constantinople. However this may be, the bird-fibulæ supply the requisite link between the Ahin Posh reliquary and the Wolfsheim girdle-plate on the one hand, and the crown of Svinthila on the other. For no one has disputed that they belong to the same art as the crown; while their affinity with the two Asiatic objects is equally impossible to ignore.

Fig. 18. Gold gorget from Petrossa.
From an electrotype in the Victoria and Albert Museum, South Kensington.

The chief aim of this Paper is now accomplished, for it has been shown that the principal varieties of inlaying met in Southern Russia in the early centuries of our era, and their transmission to Western Europe by the Goths and Gepidæ is so universally accepted that it needs no discussion here. The Goths were thus not the inventors of a new style of jewellery, but the adapters and the

carriers of a style which originated in another continent long before they left their Scandinavian home.

A few remarks may be added on the relation of inlaid jewellery to Roman and Byzantine art. Its earliest connection with the Roman Empire is still rather obscure. But if it had been flourishing in Persia several centuries before Christ, and in Western Scythia from the beginning of the Christian era, it is obvious that a change of taste in the direction of coloristic effect was all that was needed to insure its introduction into the Roman provinces. This change would in fact appear the moment the Roman learned to prefer the showy and brilliant to the more solid and unpretentious ornament of the past. There seems little reason to doubt that such a change had begun to take place as early as the second century, and Dr. Riegl in his recent work on late Roman art-industry in Austria,[a] is inclined to claim for late Roman art, many of the most striking jewels usually ascribed to Gothic workmen. Among these are the often quoted pierced frames from Petrianecz and Szilagy-Somlyó,[b] which enclose medallions of various Roman Emperors from the close of the third to the close of the fourth century, and a remarkably fine gold brooch of the fifth century found at Apahida in Transylvania. He maintains that there is nothing in the style of inlaid jewellery which is inconsistent with the traditions of late Roman art, and that inlaying was practised within the bounds of the empire quite independently of Teutonic influence. In his view, even the crowns of Guarrazar, whether actually made by Visigoths or not, show traces of late Roman or early Byzantine influence and descent. Dr. Riegl will probably develop his views at greater length in the second volume of his book, and it is therefore premature to discuss opinions which have not been stated in their final form. There certainly seems no reason why inlaid jewellery should not have been known in some parts of the empire in quite early times without any intervention on the part of the Goths or other Teutonic peoples, for it is surely possible that jewels ornamented in this way might as easily have penetrated the districts which border on Persia on the west, as the countries towards the Indian frontier on the east. Such a development, for example, would be quite possible towards Syria, which contained some of the most productive garnet mines in the world. For similar reasons it might legitimately be assumed that inlaid ornaments were made in Constantinople from the very beginning. For it is known that skilled craftsmen of all kinds were

[a] A. Riegl, *Die Spätrömische Kunstindustrie in Oesterreich-Ungarn*, 172-184 and 202-207.

[b] Hampel, as above, 165; F. von Pulszky, *Die Goldfunde von Szilógy Somlyó* (Buda-Pesth, 1890).

invited to take up their abode in the new metropolis, and it can hardly be doubted that artificers from the northern shores of the Euxine, where as we have seen, inlaying was known long before 330 A.D., availed themselves of the profit and security which such an invitation implied. I do not know that any piece of Byzantine inlaid jewellery exists which can be attributed to the early centuries of the new empire; for perhaps few would be now inclined to follow Labarte and others who ascribed to Byzantine workmen many of the finest Western European pieces such as the

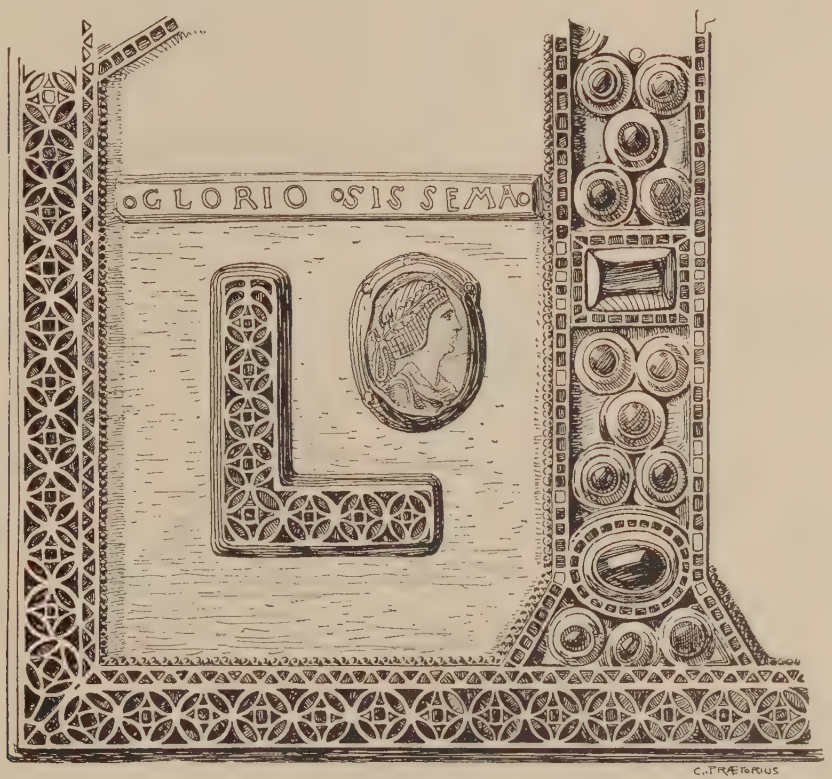


Fig. 19. Section of an inlaid gold cover for a book of the Gospels, presented by Theodelinda, Queen of the Lombards, to the Cathedral of Monza. After Bock.

sword of Childeric and the book-cover (fig. 19), presented by the Lombard Queen Theodelinda to the Cathedral of Monza.[a] But although the fact is impossible to prove, there is nothing inherently improbable in the suggestion that this kind of jewellery may have been well known on the Bosphorus before the time of

[a] Best reproduced by Bock, *Kleinodien des heiligen Römischen Reichs*, pl. xxxv. See also Molinier, *L'Orfèvrerie*, 9.

Justinian. For it seems certain that similar work continued to be produced in Constantinople after it had died out in Western Europe, and a good example is still preserved in a tenth century cover of a Book of the Gospels[a] now in the treasury of the Cathedral of Limburg-on-the-Lahn, which is decorated with plaques of typical Byzantine enamel within borders of pearls and inlaid stones

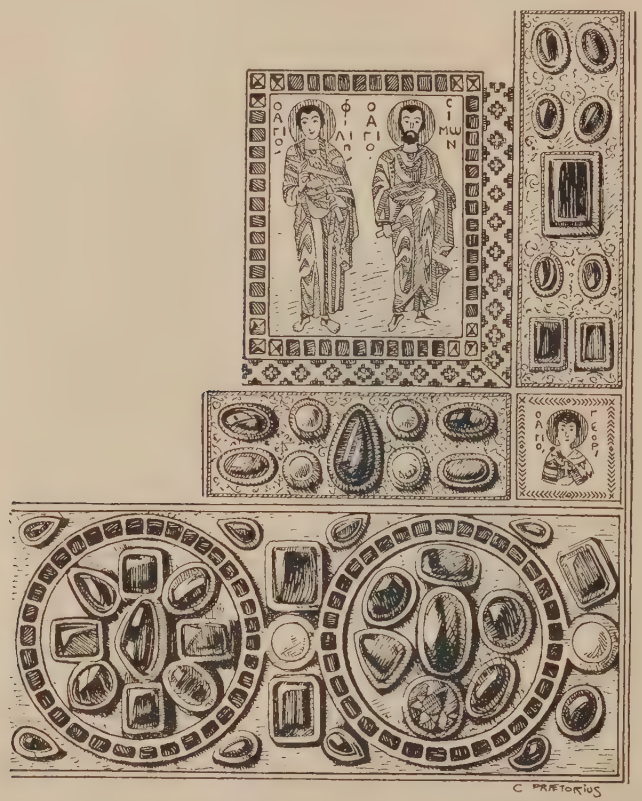


Fig. 20. Section of a Byzantine inlaid and enamelled cover of a book of the Gospels at Limburg-on-the-Lahn. After Aus'm Weerth.

(fig. 20), and bears inscriptions with the names of Constantine VII. (Porphyrogenitus) and Romanus II., thus placing its date between 948 and 959, when these

[a] Molinier, as above, 46-48; Didron, *Annales archéologiques*, xvii. 337; Aus'm Weerth, *Das Siegeskreuz des byzantinischen Kaisers Konstantinus VII. und Romanus*, plate i. (Bonn, 1866). This book-cover was brought from the sack of Constantinople in 1204 by a German knight who gave it to the nunnery of Stuben near Trèves. After the French Revolution it was taken to Ehrenbreitstein, and in 1815 became the property of the Duke of Nassau, who in 1827 presented it to the Cathedral of Limburg.

two princes were associated in the empire. It is hardly likely indeed that a style of ornamentation which was practised in neighbouring countries at so very early a date should have been altogether neglected by the goldsmiths of the metropolis, only to be adopted after the lapse of 500 years, when the barbarians of the north were discarding it as something antiquated and out of date.

The central fact in the history of inlaid jewellery is its close connection with Persia, a link which seems to have been already recognised in Europe at least as early as the seventh century. When Gregory the Great presented to Adaloald, the Lombard king and first husband of Theodelinda, the copy of the Gospels to which allusion has already been made, he sent with the book a letter describing it as enclosed in a Persia cover (*theca Persica inclusam*). Now there seems good reason to think that this *theca Persica* is no other than the inlaid book cover now at Monza to which reference has already been made,[a] and that it was so called because inlaid work was commonly accepted in Europe as an *opus Persicum*, an art of Persian introduction; the term would thus be no less natural or significant than our word china, which points to the Asiatic derivation of the porcelain now manufactured in every civilised country of the west. In view of the facts brought forward in the course of this Paper there seems nothing far-fetched in such a theory. The long association with Persia of the second variety, which we have called plate-inlaying is equally well attested, and whether the two styles entered Europe together or at different times, they were united in southern Russia at any rate as early as the fourth century A.D.

In conclusion, I must express my thanks to the Director of the Victoria and Albert Museum, South Kensington, for several photographs; to Mr. F. G. Hilton-Price for the loan of the block of fig. 1A; to Professor A. H. Church for his kindness in determining the nature of the stones in the Oxus armlet and the Ahin Posh reliquary; to M. de Kieseritzky, of the Imperial Museum of the Hermitage, St. Petersburg, for showing me the wonderful collection of Scythian antiquities under his charge; and to Mr. C. H. Read not only for suggesting the desirability of some such enquiry as I have endeavoured to pursue, but also for much valuable assistance in the course of the work; indeed the views to which it gives such inadequate expression coincide in large measure with his own. Nor can I omit to mention another debt which is shared by all archæologists, and more especially by the Members of the Society of Antiquaries. The Oxus treasure, which is so important for the history of inlaying was originally purchased by Sir A. Wollaston

[a] Molinier, as above, 17.

Franks, K.C.B., late President of the Society, and bequeathed by him to the nation in 1897. Perhaps it is even yet too early for us to appreciate to the full how great a loss we have suffered by his death. His long experience and remarkable archæological insight enabled him intuitively to grasp the importance of new facts while others were still sceptical or blind; and the generous support which he accorded to every branch of his favourite science will not readily be forgotten by those who have most sincerely at heart the permanent interests of archæology. It was his intention to have worked out in retirement many of the problems connected with the collections which he had brought together during his long and useful life, and we may be sure that those suggested by the Oxus Treasure would have been among the first to receive his attention. It is our common loss that his hopes were not destined to be fulfilled, and that his death removed too soon from our midst a personality equally admirable for learning, generosity, and kindliness of heart.

X.—*The St. Albans School of Painting, Mural and Miniature: Part I. Mural Painting.* *By* William Page, *Esq., F.S.A.*

Read 10th April, 1902.

The history of mural and panel painting in England before the sixteenth century may perhaps be divided into three periods. Firstly, that from the Norman Conquest, or possibly before, which continued during the wave of monastic enthusiasm which swept over Europe, and ended at the close of the thirteenth century. During this time there is every reason to suppose from the evidence of chronicles, fabric rolls, and works accounts that in England as well as elsewhere all the decorative arts were practised by persons associated together in schools or lodges with three gradations of members, namely, masters, workmen, and apprentices or novices.[a] Art was at this date fostered by the monasteries, indeed, those who practised it were largely drawn from the inmates of the Benedictine houses, and it would seem that, at all events at St. Albans, the sacrists were themselves workers and sometimes held the rank of master workmen.[b] During this period one man practised many arts. We know that Richard the Painter superintended the building of Hereford Castle in 1172,[c] and, later, Master John of

[a] Leader Scott, *The Cathedral Builders*, 16, 265, etc. For the gradation of workmen see the Exchcq. K. R. Accts., Works, Bdles. 466, 467, 468, 471, etc.

[b] Master Baldwin, a celebrated goldsmith, was sacrist in 1186 (*Gesta Abbatum S. Albani*, Rolls Series, 28 [4], i. 190, 191, 205). Master Walter of Colchester, of whom hereafter, was sacrist in 1213. Master Gilbert of Eversolt was sacrist and master of the works in 1218 (*Ibid.* 205, 219, 220). They seem to have obtained notoriety as master workmen before they became monks.

[c] Pipe Roll Soc. xix. 39; xxi. 121.

St. Omer, while making the great lectern for the chapter house at Westminster in 1253, had carpenters, masons, painters, smiths, and others working under his direction.[a] Numerous other instances could be quoted were not the practice so well known as to make it unnecessary.[b]

The second period grew out of the first, probably overlapping it, and continued till towards the close of the fourteenth century. There arose at the end of the thirteenth century a tendency to specialise, the painters severed themselves from the freemasons, and the number of religious art workers became less, the monks gradually ceasing to belong to the craft. The system, however, of working in lodges or schools seems to have continued under similar conditions as before. The tendency to specialise is well illustrated by the Exchequer Works Accounts, where we find that instead of, as formerly, a master workman superintending the work of artizans of all trades we have the master mason directing the masons only, the master painter directing the painters, and so on.

At the end of the fourteenth century, when the third period begins, the art of mural painting fell almost entirely into the hands of the skilled artizan, who worked more independently and was less fettered by the conventional rules which had been handed down in the earlier schools, giving perhaps more accuracy and skill but less feeling to his work. These painters travelled about the country and painted the numerous fifteenth-century pictures of very varying merit which remain on the walls of some of our churches.

To turn, however, to the subject which directly touches my paper, and which I think will illustrate the foregoing remarks, I would mention that St. Albans Abbey was founded by Offa II., king of the Mercians, about the year 793. How early there was a school of painting at the monastery we do not know. There is nothing known of a school of either painting or writing there in Saxon times, and if any such existed[c] all evidence of it was swept away by Abbot Paul of Caen, the first Norman abbot, who appears to have had the highest contempt for everything connected with the Anglo-Saxon race.[d] He entirely obliterated all traces of the Saxon church, destroyed the monuments of the Saxon abbots, and brought in the more severe rule of the Norman monasteries. It would not be surprising there-

[a] Exchequ. K. R. Accts., Works, Bdle. 467, Nos. 1 and 2.

[b] Dr. Alf. Woltmann and Dr Karl Woermann, *History of Painting*, i. 356.

[c] The only reference to any painting in the Saxon church is to that of the shrine (*Gesta Abbatum S. Albani*, i. 36).

[d] *Gesta Abbatum*, i. 62.

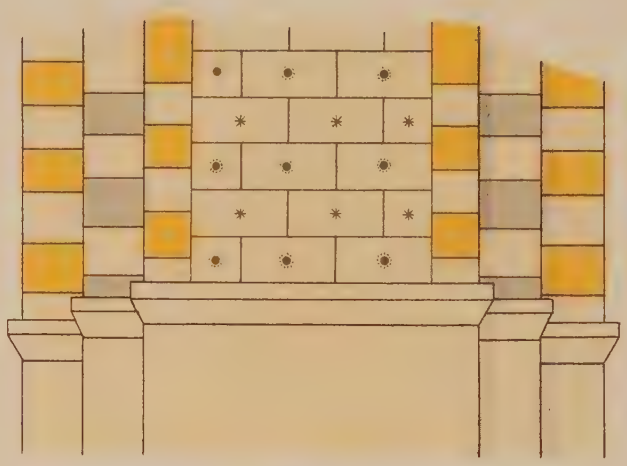


Fig. 1
1ST NORMAN BAY.

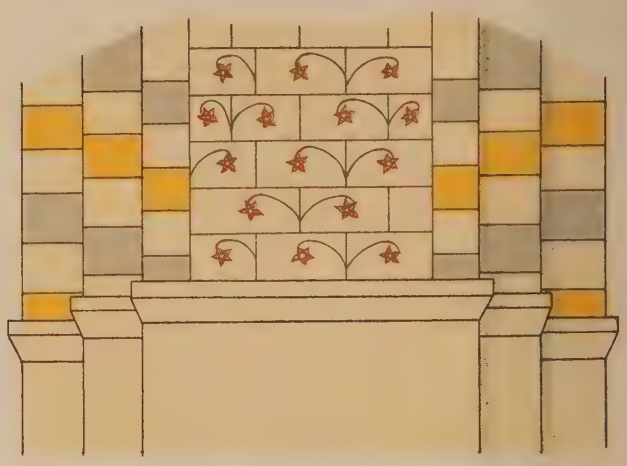


Fig. 2.
2ND NORMAN BAY.

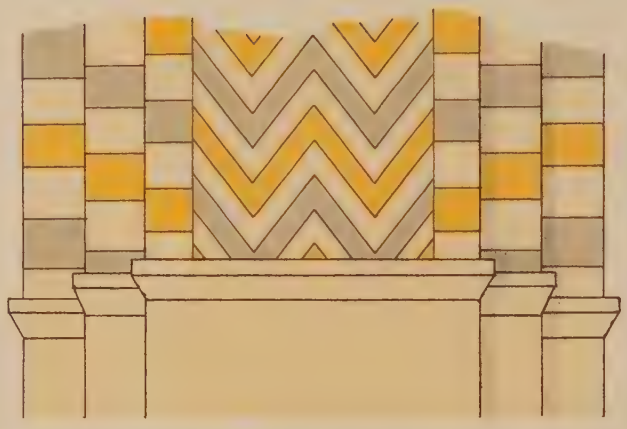


Fig. 3.
3RD NORMAN BAY.

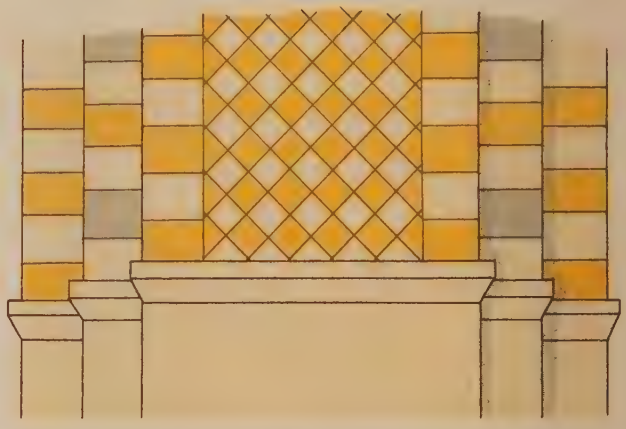


Fig. 4.
4TH NORMAN BAY.

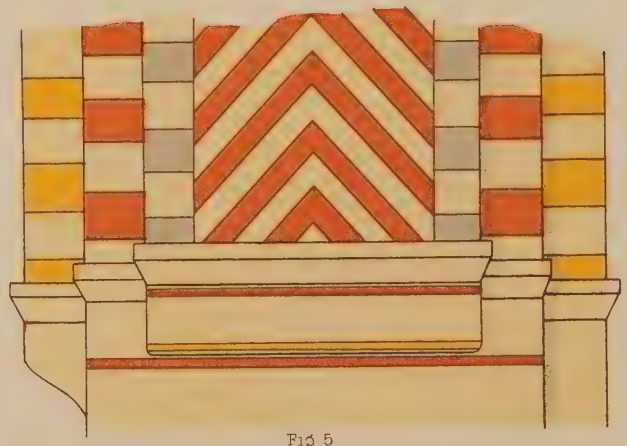


Fig 5
5TH NORMAN BAY.

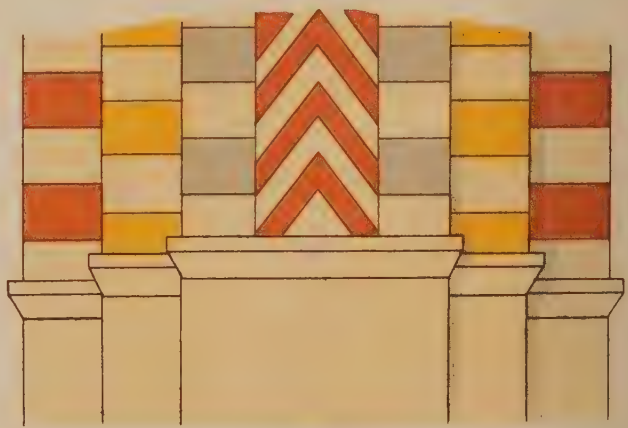


Fig. 6.
BAY IN CHOIR.

Scale - ½ inch to a foot.

C. F. KELL & SON, CHROMO LITH

ST ALBAN'S ABBEY CHURCH. - PAINTED DECORATION ON NORMAN ARCHES.

Published by the Society of Antiquaries of London, 1902

fore, had there been a school of painting before the Conquest, that it should have been treated with that scorn which Abbot Paul meted out to all things Saxon.

Of the Norman church built by Paul of Caen (1077-1093), the choir and presbytery with their aisles and the transepts were probably the first parts of the church to be rebuilt, the nave being left till later. This theory is borne out by the fact that the dimensions of the pilasters of the piers and the orders above, in the bays east of the rood screen, are of different dimensions from those on the west. The arches of all the Norman bays now remaining are enriched with polychromatic ornament (Plate XVII.), and the decoration of all those on the east side of the rood screen is the same in design,[a] though differing in colour, and consists of two series of chevrons or chevrons reversed in red or blue on an ivory white ground meeting at the middle of the soffit, and having a border pattern of squares in red and blue or grey on the retiring orders, and this decoration, according to the evidence of the north-west pier of the tower, was apparently carried down to the ground. The whole is very effective though rude, and, if one may say so, pleasantly irregular in drawing. That this decoration was used contemporary with the arcade seems likely from the fact that the design changes so soon as it arrives at the slightly later work on the west side of the rood screen. The tower arches and some of the arches in the transepts[b] have the coloured squares in the orders, while the soffits are filled in with masonry pattern.

The decoration of each arch of the Norman bays on the north side of the nave is different. The easternmost has a series of red chevrons,[c] the next westward is lozengy yellow and white, the third has a design of double chevrons in yellow and grey, the fourth and fifth had originally only the masonry pattern, but at a later date five-leaved flowers and stems have been inserted into the masonry pattern of the one and stars and rosettes alternately into the other. The piers were decorated with the masonry pattern which was much used on the plaster throughout the Norman church.

The scheme of this early Norman polychromatic decoration is particularly interesting at St. Albans, being, as it is, applied to a building so extremely plain and entirely devoid of incised ornament that the only relief from its plainness was the coloured designs. Indeed the whole decorative effect was dependent upon colour, and therefore a bolder scheme could be indulged in than was possible

[a] See Plate XVII. fig. 6.

[b] The coloured decoration here has been renewed, and some of the decorations in the north transept are certainly not Norman in colour or design.

[c] See Plate XVII. figs. 1-5, for this and the following descriptions.

in the later work at Norwich, Ely, and other large churches. There is now no evidence that this coloured decoration was used on the walls above the ground story of the Norman church. The Norman vaulting which yet remains in the aisles of the presbytery is decorated with the masonry pattern and with bands of yellow ochre along the ribs. We learn from the *Gesta Abbatum Sancti Albani*[a] that the vaults of the eastern apses were painted in the time of Paul of Caen. The greater part of the rebuilding of the church in the time of Paul of Caen (1077-1093) was left to Robert the Mason, who was probably responsible for the coloured decoration.[b]

From mere decorative designs of the early Norman period we come at St. Albans, at the beginning of the thirteenth century, to a series of figure paintings, which are the work of a distinct school.[c] The founder of this school, or he who first brought it into notoriety, was Walter of Colchester. The earliest reference I have found, which apparently relates to this artist, is an undated charter by Adam of Campes, abbot of St. John's of Colchester from 1192 to 1237, and made in the chapter house at Colchester, in which one of the witnesses is Walter the Painter,[d] who, I think there can be little doubt, was Walter of Colchester. This is interesting as showing his connection with Colchester Abbey, but I have traced no work that can be identified as his in Colchester or the neighbourhood. He must have become a monk at St. Albans about the year 1200 or a little later, being attracted there, we are told, by brother Ralph Gubion, afterwards prior of Tynemouth, whose family was long connected with the abbey and was well known in the counties of Hertford and Essex. A further attraction

[a] i. 60.

[b] *Gesta Abbatum*, i. 63.

[c] From the time of Paul of Caen, the first Norman abbot, there appears to have been at St. Albans a school of art workers, which excelled principally in the goldsmith's craft. Abbot Richard (1097-1119) fostered this art (*Gesta Abbatum*, i. 69), and in the time of his successor, Abbot Geoffrey (1119-1146), a beautiful shrine was made for the relics of St. Alban by Anketil, a monk of the abbey, who had been goldsmith to the King of Denmark. He was assisted by his pupil, Solomon of Ely (*Ibid.* 83, 86). Master John the Goldsmith or John of St. Albans followed, who worked on the shrine; his son Nicholas was keeper of the mint to the King of Denmark and afterwards served the King of England in a like capacity (*Ibid.* 19, 189). Master Baldwin, who was sacrist of St. Alban's Abbey in 1186, was a renowned goldsmith (*Ibid.* 190). Walter of Colchester, Richard the Monk, and other members of the monastery also practised the goldsmith's art. It may be noticed that several of these artists became monks at the Abbey after they had worked at their arts for some time and had obtained probably the position of master workman.

[d] *Cartularium Monasterii Sancti Johannis Baptiste de Colcestria* (Roxburghe Club), ii. 586. Walter of Colchester is frequently referred to in the *Gesta Abbatum* as Walter the Painter.

must have been the abbot then ruling the monastery, John de Cella, whose appreciation and taste for art were well known. Walter of Colchester appears to have been a friend also of Robert of London, who is said to have gone on that strange mission from King John to offer the kingdom of England to the Emperor of Morocco, which is described by Matthew Paris,[a] and who as a reward for his services was granted the custody of St. Alban's Abbey in 1213. Not only was Walter a painter, but he is said to have excelled also as a sculptor, carver, and as a worker in metals. He is nearly always described as "Master" Walter of Colchester, and as he had pupils and others working under him, he had, we may imagine, obtained the position of a master workman. He was made sacrist of the monastery about the year 1213. Working under him, as his pupils were his brother, Master Simon, Richard, son of Master Simon, and possibly also Alan the Painter, a lay brother.[b] The works at St. Alban's Abbey which Walter executed are too numerous to be set out;[c] principal, however, among them were a great picture, partly of metal and partly of wood, a picture before the altar of the Blessed Mary, and other paintings before other altars,[d] to which reference will be made hereafter.

These works were done in the time of Abbot John de Cella, who died in 1214. The succeeding abbot, William of Trumpington, fully appreciated the work of Walter of Colchester, and desired, it is said, to use incessantly his labour and art while he should enjoy prosperity of life and age,[e] and during Trumpington's abbacy, Walter designed, carved, and painted the *pulpitum* or rood loft in the middle of the church, which stood probably where the rood screen now stands, with its great cross and the Mary and John. He likewise carved a great beam representing the history of St. Alban, and also, as it is said, a most elegant Mariola.[f] Perhaps his most noteworthy work was done outside the monastery of St. Alban. This was the celebrated shrine of St. Thomas of Canterbury, which the prior and convent of Canterbury engaged him to design, and, with the assistance of Elias of Derham, canon of Salisbury, to execute for them. He was present at the translation of the body of the saint on 7th July, 1220, from the crypt of the cathedral church of Canterbury to the newly made shrine.[g] The honour

[a] Matthew Paris, *Chronica Majora* (Rolls Series), ii. 559.

[b] Matthew Paris, *Chronica Majora*, vi. 271.

[c] Records of them will be found scattered through vol. i. of the *Gesta Abbatum* (Rolls Series).

[d] *Gesta Abbatum*, i. 232.

[e] *Ibid.* i. 279.

[f] *Ibid.* i. 283, 286.

[g] Matthew Paris, *Chronica Majora* (Rolls Series), iii. 59, and *Historia Anglorum*, ii. 242.

conferred upon him by a rival monastery of selecting him to do this work is a clear indication of the esteem in which he was held by his contemporaries. He died on 2nd September, 1248.[a] Matthew Paris describes him as *præelectus pictor* and *sculptor et pictor incomparabilis.*

Master Simon, his brother and pupil, was married, and does not seem to have taken upon him the religious habit, nevertheless he worked with his brother and his son, Richard, on various paintings in the abbey church and at the great painted chamber of the monastery.[b] We do not know the date of Simon's death, but it probably occurred before 1250. His son, Richard, was a monk at St. Alban's Abbey, and was employed upon painting and goldsmith's work there and elsewhere certainly as early as 1240, as we have a list of his works completed during the nine and a half years previous to 1250.[c] Among the works enumerated are the gilding of the great Cross and the Mary and John over the high altar, some goldsmith's work on the shrine, an aumbry in the church, a superaltar at the altar of St. John, the painting of the great painted chamber or guest hall, some paintings at Wallingford Priory and Hertford Priory, cells of St. Alban's Abbey, some banners and other works. We find also that in the time of Abbot Roger of Norton (1260—1291) he was keeper of the altar of St. Amphibalus,[d] and he may have been the same as brother Richard, warden of the hospital of St. Mary de Pré near St. Albans.[e] Of Alan the Painter we know nothing more than he was a lay brother at the monastery and died in 1245.[f] These were the principal workers, the master painters or *magistri*, as Walter and Simon are usually called, who flourished at the abbey during the greater part of the thirteenth century. We have at the same time references to workers and pupils under these masters, giving, I think, all the essentials for a school or lodge.

Let us attempt to trace any existing work which was executed by this school. We are told in the *Gesta Abbatum Sancti Albani*,[g] under the list of works done in the time of Abbot John de Cella (1195 to 1214), that all the *tabulæ* before the altars of the church (*ecclesiæ*) were painted by the hands of Master Walter of Colchester, Master Simon his brother, and brother Richard, nephew of Master

[a] Matthew Paris, *Chronica Majora*, vi. 271.
[b] *Gesta Abbatum*, i. 232.
[c] Matthew Paris, *Chronica Majora*, Addit. vi. 202.
[d] Cott. MS. Julius D. 3, fol. 27
[e] *Gesta Abbatum*, i. 305.
[f] Matthew Paris, *Chronica Majora*, vi. 271.
[g] i. 233.

Walter, although, it is added, some of these works were done after the time of John de Cella. The entry enumerates seven of the altars and by whom the *tabula* before each of them was painted. It seems exceedingly probable that when these *tabulæ* or frontals were made the mural paintings forming the reredos were added. Again the expression *ecclesia*, as used here, always refers at this date to the nave, and we know that certainly some of the seven altars named, *i.e.* St. Mary, St. Thomas of Canterbury, St. Benedict, and St. Amphibalus, were, at that time, in the nave of the church. After the extension of the church eastward, at the beginning of the fourteenth century, the positions of the altars were very much changed, so that the survey of the church in 1428 [a] does not help us much in the identification of the earlier positions of these altars. The conclusion I would suggest is that the seven altars named were those at the Norman piers then standing in the nave, and that the paintings of the crucifixion and scenes in the life of the Virgin now on the western faces of the Norman piers on the north side of the nave were painted at the same time as the *tabulæ* or frontals above alluded to as having been painted by this school. These paintings form a series of pictures which both for effect and interest are not probably to be surpassed. Mr. George Gilbert Scott, in his *Essay on the History of English Church Architecture*,[b] says :

> I can scarcely conceive of anything finer than this series of paintings as viewed from the west end of the church. The great mystery of the Redemption of Mankind preached thus under varying aspects again and again from every pier, produces an impression which no description can properly convey. It is only upon the spot that its dignity can be really felt.

The drawing of these pictures, though conventional and crude, is free. The warm red and brown tints which prevail in them are quite dissimilar from the slightly earlier work found at Ely, Norwich, Durham, and at other churches, where the colours are light and the drawing, though excellent in its exactness, has not the freedom which is to be found at St. Albans. The plaster seems to have been carefully prepared for the paintings, and contains a considerable quantity of hair, a thin layer of finer plaster being applied on the surface. The picture was first drawn out in red to outline flesh and red drapery, and where the drapery is dark the outline is black, the outline of the wood of the crosses is green or brown. The *nimbi* are set out with compasses. The drawing of the

[a] Ridgway Lloyd, *The Altars, Monuments, and Tombs in St. Alban's Abbey in* 1428. Langley, St. Albans, 1873.

[b] P. 109,

figures is poor, particularly the hands and feet, but the pose is good and full of expression. These paintings were probably all whitewashed over at the end of the fourteenth or early in the fifteenth century, as it may be noticed that a fifteenth-century bracket, which we know held the figure of St. Richard in 1428,[a] has been inserted into the middle of the lower picture of the first painting. It is in consequence of their having been covered up that these paintings have escaped the defacement which those on the south side of the same piers underwent in the sixteenth century, when the heads and the upper parts of the figures were scraped off, the usual mode of defacement at that time. They were discovered under the whitewash about 1862, and were reported to this Society by Sir Wollaston Franks on 29th January, 1863.[b]

Mr. Waller, Mr. Keyser, Mr. Ridgway Lloyd, and Mr. Bloxam all agree that the easternmost of these paintings (Plate XVIII. fig. 1) is the earliest, and I think we may add was in all probability by the hand of Master Walter of Colchester. There is a considerable amount of spirit and individuality in the work which is wanting in the other paintings, the treatment being more naturalistic than is usual at the time. These are qualities one would expect to find in Walter of Colchester, who we know stood in advance of his contemporaries as an artist. The upper painting, representing the Crucifixion, has a background of red, or more properly of purple, powdered with stars and five-leaved flowers. In the middle is the cross with the body of the Christ falling forward and the knees drawn up in the attitude of death. The figure has an ample cloth round the loins which is much draped. On the left is the figure of the Virgin standing on a raised mound, and on the right is the figure of St. John standing upon a similar mound. The heads of both are inclined to denote deep sorrow. The lower painting under a trefoil canopy is a representation of the coronation of the Virgin. On the right is the figure of Christ seated upon a throne, his right hand raised in benediction and his left holding a book, having a finely wrought cover. The Virgin is seated on the left wearing a crown, and having an under garment of red and an upper of white. The throne is of a type found in thirteenth-century St. Albans MSS.[c] Under the mounds upon which the Virgin and St. John stand are angels censing. I would place the date of this painting at about 1210. The decoration at the top and sides is probably of a later period.

[a] See *Altars, etc. in St. Alban's Abbey*, by Ridgway Lloyd, 15, 50, 60.

[b] *Proc. Soc. Antiq. Lond.* N.S. ii. 198.

[c] See Cott. MS. Nero D. 1, and other St. Albans MSS.

Fig. 1.

Fig. 2.

Fig 3

Fig. 4

ST. ALBAN'S ABBEY CHURCH—PAINTINGS ON THE NAVE PIERS.

Published by the Society of Antiquaries of London, 1902.

The other paintings not being so distinctive, it will be as well to take them in their order starting from the west. The upper painting on the west face of the first pier (Plate XVIII. fig. 2) represents the Crucifixion. Christ is on a cross raguly, painted green, around his head is the *nimbus cruciger*, the hair is long and flowing and of auburn colour. The flesh throughout the painting is of an extraordinary dark brown; whether caused by some chemical action or whether it is the pose described by Theophilus,[a] or something similar, used as a ground colour, from which all the flesh tints have disappeared, it is difficult to say. It would seem, however, that the latter suggestion is more probable, as there is now scarcely a vestige of a feature on any of the faces. Our Lord wears a cloth tied round his loins; on the left is the Virgin with a covering like a shawl over her head, and an upper garment of grey tied at the waist, and a brown under garment. St. John, on the right, holds a book in his left hand, and wears an upper garment of red and a lower of grey. His feet are incased in boots. The lower painting of the Virgin and Child is in a very fragmentary condition; the bracket, before referred to, that held the figure of St. Richard, has been inserted into the middle of the picture, the lower part of which has been cut away. The Virgin holds the Infant Saviour on her left arm, and in her right hand a sceptre or lily. Above are two angels censing. A similar rather awkward treatment of the sceptre or lily, but with the position of the hand reversed, occurs in an early thirteenth-century St. Albans MS.[b]

The painting on the second Norman pier (Plate XVIII. fig. 3) represents, as before, the Crucifixion in the upper part. Christ is upon a cross raguly painted green, and has a fully draped red cloth round his loins. The hair is fair or auburn. On the right is the figure of the Virgin with her arms crossed upon her breast, barefooted, and wearing a white under garment with a red robe over it, and round her head is a red nimbus. On the left is the figure of St. John, also with a red nimbus. It may be noticed that this and the painting of the Crucifixion on the third pier (Plate XVIII. fig. 4) are clearly by the same hand; the want of proportion in the length of the leg from the foot to the knee, the drawing of the arms, the arrangement of the draperies, and the pose of the Virgin are alike in both paintings. Poor as the drawing is, there is an immense amount of feeling in the pose of these figures. The lower picture on the second pier, representing the Virgin and Child, has been repainted, and little now remains

[a] Theophilus, *Upon various Arts.* Translated by Hendrie, 1847, p. 5.

[b] Royal MS. 2 B. vi. fol. 12b.

of the painting of either period. The Virgin is seated under a five-foiled arch, the spandrels of which are decorated with an elaborate scroll pattern in white upon a red ground. The arch is supported upon pillars, the capitals of which are, I think, copied from the early thirteenth-century capitals of Abbots John de Cella and William of Trumpington, which fixes the date of the painting between about 1210 and 1235.

Little but the outline remains of the painting of the Crucifixion on the third pier. (Plate XVIII. fig. 4.) The head of St. John is leaning upon his hand in an attitude of deep sorrow. The picture has been repainted, the heads of what is apparently the later painting being seen over the figures now left. The lower painting represents the Annunciation. The figure of the Virgin and the Angel Gabriel are each under a separate arch. The remarks regarding the capitals in the description of the last painting apply equally to those here shown.

The upper picture on the fourth pier (Plate XIX. fig. 1) shows the Crucifix alone, the outlines only, in black, now remain. The lower painting of the Annunciation is probably by a different hand, and is much the same in treatment as the representation of the same subject on the third pier.

There is another painting of this period in the spandrel of the arch leading from the south transept into the south aisle of the presbytery. It represents an angel wearing a purple garment with outstretched wings in green. (Plate XX. fig. 1.)

Among the other works[a] probably of this school was the lectern or pulpit in the chapter house, which seems to have been a very magnificent structure. On 21st September, 1249, Henry III. issued a writ to Master John of St. Omer to cause a lectern to be made for the new chapter house at Westminster like the lectern in the chapter house at St. Albans, or more beautiful if it could be made.[b] This lectern must have been a most elaborate piece of work, as we find from the accounts for making the copy that it took some time over a year with a staff of from one hundred to one hundred and fifty artizans, including stone dressers, marble workers, carpenters, painters, smiths, glass workers, and plumbers working at St. Albans to complete it. The accounts for making this lectern are very interesting in illustrating the mode of carrying out such a work at that date. The

[a] Mr. George Gilbert Scott in his *History of English Church Architecture*, pp. 119, 120, 121, suggests that the nave ceiling at St. Albans destroyed by Lord Grimthorpe was that erected by Walter of Colchester, but the work on some pieces of the panels which I have seen is not, I think, earlier than the sixteenth century.

[b] Close Roll, 33 Hen. III. m. 3.

Fig. 1

Fig 2.

Fig 3.

Fig 4

ST. ALBAN'S ABBEY CHURCH—PAINTINGS ON THE NAVE PIERS.

Published by the Society of Antiquaries of London, 1902.

workmen were all under the direction of Master John of St. Omer and were paid weekly, most of them by wage but a few by piecework. They were joined after a time by Master Peter the Painter, another master of the craft, whose name is well known for his work at Westminster, but he served under Master John of St. Omer.[a]

With the close of the thirteenth century the monks at St. Albans appear to have ceased to work themselves at mural painting, sculpture, or the kindred arts, or to have designed or superintended the erection of the buildings of the monastery. Henceforth the fabric was in the charge of a lay master of the works instead of the sacrist,[b] though there can be no doubt that the designs were influenced by the abbots and other officers of the monastery.[c] The sacrist did not hereafter receive the prefix of Master, nor did he, so far as it is recorded, execute any work with his own hands as the sacrists had previously done. In the place of the brotherhood of art workers, religious and lay, working together upon all branches of art, we have at St. Albans the work continued by laymen specially qualified to execute one particular art. One of the first among these was Master Walter the Painter, who had a house at Bowgate, St. Albans,[d] and who may possibly be identified with the painter of the same name who did so much work for King Edward I. on the great chamber at Westminster and elsewhere between 1285 and 1293, and who, Mr. Rokewode[e] suggests, is the same as Walter of Durham. We know that he had a son Thomas,[f] and we find that a Thomas the Painter had a house adjoining that of Walter the Painter in Bowgate, St. Albans,[g] who, it seems probable, was that son. The earliest reference I have found to Master Thomas the Painter is in a suit against the abbot of St. Albans touching the jurisdiction of the Court Christian, when we find that he was present with Hugh le Teyntur and others in the conventual church while the Court Christian was sitting on Sunday before the Feast of the Purification, 1290.[h] I find he was assessed at the

[a] Excheq. K. R. Accounts, Works, Bdle. 466 No. 30; Bdle. 467, No. 1; and Bdle. 467, No. 2.

[b] *Gesta Abbatum*, ii. 124, 125, etc.

[c] The works at St. Alban's Abbey executed during the long abbacies of Abbot Thomas de la Mare (1349-1396) and Abbot John of Wheathampstead (1420-1464) were clearly influenced by these abbots.

[d] Cott. MS. Julius D. 3, fol. 48d.

[e] *Vetusta Monumenta*, vi. 27. The evidence in support of this identification does not seem strong.

[f] Excheq. K. R. Accounts, Bdle. 468, No. 6.

[g] Cott. MS. Julius D. 3, fol. 43d, 48d.

[h] De Banco Roll No. 86 (18-19 Edw. I., Mich.), rot. 22

borough of St. Albans[a] for the subsidy levied in 1291; and in 1292 he was apparently working under his father at the paintings at Westminster.[b] He was again assessed for a subsidy at St. Albans in 1294.[c] Mr. Rokewode identifies him with the Thomas of Westminster who was living in 1307. He probably died early in the fourteenth century, and left his daughter Ascelin his heir, who inherited his property at St. Albans.[d] Considering that the two painters last referred to lived at St. Albans, it seems likely that they would have worked in the abbey church. No work, however, now existing there can be definitely identified as of their date, unless we may attribute the repainting of the lower picture on the western face of the second pier of the nave and of the two pictures on the third pier to be of the time of Thomas the Painter, but both these paintings are in too fragmentary a condition for the detail to be seen.[e] Having regard to all that has been destroyed since the dissolution of the Abbey it is not surprising that we are unable to connect any existing work with this period. With Walter and Thomas the Painters we lose all evidence of what may properly be called the school of mural painting at St. Albans.

Master Hugh the Painter, or Master Hugh of St. Albans, possibly received his training at the St. Albans School, although we have no record of his working there. We first have reference to him in 1348, when he is described as groom of the king's chamber, and received payment for painting the king's ships, flags, and three hundred pennons, with the arms of St. George for the king's voyage to Gascony.[f] On 18th March, 1350, he was appointed by Edward III. master painter for the work to be executed in St. Stephen's Chapel at Westminster, and he was authorised to take up such workmen as he thought necessary in the counties of Kent, Middlesex, Essex, Surrey, and Sussex.[g] He was working at St. Stephen's Chapel from this date till 1355.[h] The account of the works at Westminster at this date are very instructive with regard to the mode in which

[a] Lay Subsidy, $\frac{120}{2}$.

[b] Excheq. K. R. Accounts, Bdle. 468, No. 6.

[c] Lay Subsidy, $\frac{120}{3}$.

[d] Cott. MS. Julius D. 3.

[e] The large figures painted on the wall between the windows of the clerestory in the choir may be of this date, but they are so indistinct that it is impossible to speak definitely as to their age.

[f] Excheq. K. R. Accts., Wardrobe, $\frac{391}{1}$.

[g] Rymer, *Fœdera*, v. 670.

[h] Excheq. K. R. Accts., $\frac{471}{6}$, $\frac{471}{11}$, $\frac{471}{15}$.

the painting was carried out. In the same way as the grades existed in the Comacine brotherhood in Italy, so they were here. There were four master painters employed at the same time, viz. Master Hugh of St. Albans, Master John Cotton, Master John Barnaby the elder, and Master Barnaby the younger, who each received 12d. a day excepting Master John Barnaby the elder, who had 2s. a day. These master painters received payment for drawing the outlines of the figures in the pictures and doing the more important part of the painting (*pro depictando et protractando protractura imaginum*). The outlines were probably first drawn out in charcoal or chalk, as we have items in the accounts for these materials, which outlines were afterwards painted, in red, black, or yellow ochre. The master painters did not give their services every day, but attended for from two to four days a week. Under the master painters were the working painters, who received from 6d. to 10d. a day, and below them were the novices, or what we should call apprentices, who received 5d. a day for grinding, mixing, and tempering the colours for the others.[a]

Fig. 1. Painting of St. Christopher in the nave of St. Alban's Abbey Church. ($\frac{1}{24}$ linear.)

To the second of the periods above referred to probably, but not to the St. Albans school, belong the paintings on the south faces of the Norman piers in the nave of the abbey church. The first of these from the west end (fig. 1) represents the figure of St. Christopher walking through water in which is a fish. He wears a red garment and bears the infant Saviour on his left arm. The whole painting is very indistinct and fragmentary, and may possibly belong to the fifteenth century. Next to this is the painting of St. Thomas of Canterbury standing under a crocketed canopy with a pinnacle

[a] Excheq. K. R. Accts., $\frac{468}{2}$, $\frac{468}{6}$, $\frac{471}{6}$, $\frac{471}{11}$, $\frac{471}{15}$.

on either side. The whole of the upper part of the figure has been scraped off, but from what remains the saint is shown vested in a red chasuble, white dalmatic, and an alb with square apparel of embroidery in red. His feet are encased in red shoes. In his left hand he carries his cross-staff, and from the arm hangs an embroidered and fringed manıple. His right hand is raised in benediction. It is difficult to see what the object on which he stands is supposed to represent. It is recorded that Robert of Trunch, keeper of the shrine of St. Alban in 1380, caused to be painted the image of St. Thomas,[a] in honour of which saint we know that an altar was dedicated at the rood screen near by.

The next painting, judging by the form of the canopy and pinnacles, was probably painted at the same date as that of St. Thomas. (Plate XIX. fig. 3.) It represents a figure, of which only the lower part now remains, in a long blue or black robe, standing on a red pedestal, holding in its left hand a rosary. The background is covered with tendrils terminating in red four-leaved flowers. At the head of the figure on one side is the letter S and on the other C and a letter resembling an A. Mr. C. E. Keyser suggests that this is St. Cytha or Oswyth, and Mr. Ridgway Lloyd thought it might be St. Dominic.[b] Mr. J. G. Waller thinks that the design like a starfish at the right-hand corner is the painter's mark.[c]

The third of these paintings is entirely in light red, and consists of two figures standing on a pedestal with bare heads and bare feet; the one on the left has a staff in his right hand and a satchel at his right side. (Plate XIX. fig. 4.) The background has a powdering of five-leaved flowers. The painting has been variously supposed to represent Edward the Confessor relieving a pilgrim who turns out to be St. John in disguise, and St. John giving the ring to the pilgrim. As, however, there seems to have been an altar of St. Amphibalus near to this painting, I would suggest that this picture represents St. Alban and St. Amphibalus. In the brass to Abbot John Stoke the figure of St. Amphibalus[d] was represented with a staff in his hand similar to that in this painting.

Of a little later date there is a delightful little painting of St. William of

[a] Cott. MS. Nero D. 7.

[b] *Wall Paintings in St. Alban's Abbey* (pamphlet). The altar of St. Benedict formerly stood on the opposite side to this painting, but it is questionable whether this figure could represent that saint.

[c] *Middlesex and Herts Notes and Queries*, iv. 49.

[d] This figure is now lost, but a drawing of it is given in Gough's *Sepulchral Monuments*. Mr. J. G. Waller suggests that this painting may represent the story of *Quo Vadis*.

Fig. 1

Fig. 3.

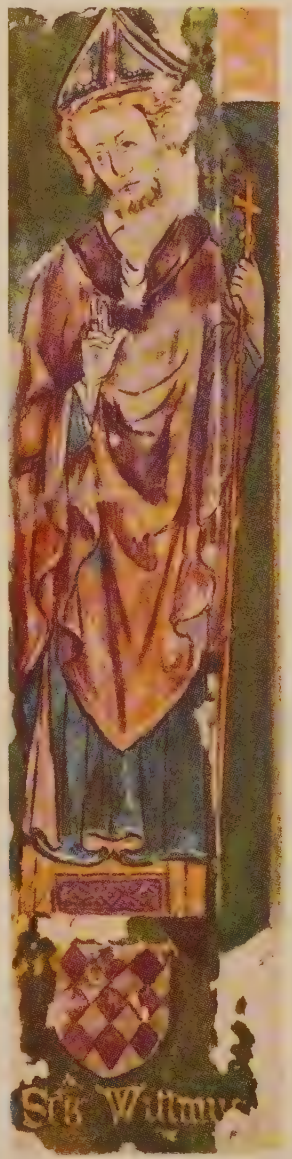


Fig. 2.

Fig. 4.

1 2 Feet. 1 Foot 1 2 3 4 Feet.

ST. ALBAN'S ABBEY CHURCH—WALL PAINTINGS IN THE TRANSEPTS AND CHAPEL OF ST. ALBAN.

Published by the Society of Antiquaries of London, 1902.

York in the north-east corner of the chapel of St. Alban. (Plate XX. fig. 2.)[a] The archbishop is represented wearing a blue mitre with a golden band set with gems. The face is well drawn and has an expression denoting sorrow; the hair is wavy and long, and the saint wears a beard. He is vested in a red embroidered amice and a red chasuble, a blue dalmatic lined with red, and an alb with its embroidered apparel in red. He has black shoes on his feet. His right hand is raised in the attitude of benediction, and on his second finger he wears a ring. In his left hand he carries a cross-staff. Below are his arms, *lozengy silver and gules*, under which is written Scs Willmus.

In a similar position on the south side of the chapel is the fragment of a painting of another archbishop. (Plate XX. fig. 3.) The figure wears a blue jewelled mitre, an embroidered amice of orange colour, a purple chasuble lined with blue, upon which is an orphrey embroidered with red crosses. The lower vestments are not sufficiently distinct to be made out. From his left arm hangs an embroidered maniple of orange colour fringed with blue, and in his left hand he holds a staff surmounted by a peculiarly large red cross. The background is white, powdered with four-leaved flowers and crescents in red. This painting probably belongs to the early part of the fifteenth century.

It has become the practice to attribute all ills and changes in the fourteenth century to the Black Death in 1349, so that one does not like to burden that epidemic with further delinquencies, yet I cannot help thinking that this dreadful plague, which was peculiarly bad at St. Albans, and also the disputes between the monastery and the townspeople which preceded it for many years, were the causes of the decay and final breaking up of the St. Albans school of painting. The painters of the later mural paintings at St. Albans had, so far as I can ascertain, no connection with the abbey. In the constitutions of Thomas de la Mare, abbot of St. Albans, made in 1351, the monks are enjoined to study, read, write, note, correct, illuminate, and bind books,[b] but nothing is stated as to mural or panel painting or the practising of other arts. The same abbot gave a picture to the monastery to be placed over the high altar which was painted for him in Lombardy, and for which he paid £45 10s. 8d. He also gave five pictures to the altar of the Four Tapers, and made other gifts, of which the prices are given, showing that they were not the work of the monks. The same remark applies

[a] This painting was found by Rev. Dr. Nicholson, who reported his discovery to this Society on 22nd April, 1852. See *Proc. Soc. Antiq. Lond.* ii. 244.

[b] *Gesta Abbatum*, ii. 433.

to all the artistic work done in the abbey after 1350, and there seems to be little or no evidence that any monk painted the walls of the abbey, *proprio manu*, as is repeatedly stated to have been done in the earlier periods. When possible, skilled masons were induced to become lay brothers, but I cannot find that there were any mural painters, except Alan before referred to, among the names of the lay brethren that have been handed down to us. Although the prices paid for the paintings are carefully preserved, the names of the painters are unfortunately omitted.

Fig. 2 Vine pattern in north transept window of St. Alban's Abbey Church.

It would be tedious to set out a list of the later pictures recorded as having been painted for the abbey. I will therefore only refer to those now existing. First with regard to the painted ceiling over the choir called the *Te Deum* ceiling. This consists of sixty-six panels in eleven rows, which, excepting the two middle panels representing the Coronation of the Virgin, alternately contain the Greek monogram ι ℏ ϲ within wreaths of vine leaves, and an angel holding a shield of arms, having over his head a scroll bearing a passage from the *Te Deum* or some anthem. This ceiling has been so ably described by our Fellow, Mr. J. G. Waller,[a] that it is needless for me to say more than that Mr. Waller attributes the date of the painting to be about 1410, with the exception of the two centre panels of the Coronation of the Virgin, which he thinks are a later insertion of about 1444, to commemorate the coronation of Margaret of Anjou. Mr. Waller suggests that the series of arms represents the family connections of Edward III., but I think it is more likely that they represent the benefactors to the abbey; indeed the shields largely refer to the persons mentioned in the *St. Albans Book of Benefactors*.[b]

The splays of the Norman windows in the north front of the north transept are decorated with a vine pattern (fig. 2), and there is a fragment of a coloured frieze with a curious dog tooth design on the south wall of the presbytery.

The remaining paintings almost all belong to the time of Abbot John

[a] *Archaeologia*, li. 427.

[b] Cott. MS. Nero D. 7.

Bostock or John of Wheathampstead (1420-40, 1451-64), one of the greatest patrons of art of his day. To the very beginning of his long abbacy probably belongs the upper of two paintings of the History of the Resurrection. The picture now left, called the Incredulity of St. Thomas (Plate XX. fig. 4),[a] is getting into a very bad state owing to the damp coming through the plastered wall. It represents Christ standing and holding a cross staff with the vexillum in his left hand, and with his right directing the fingers of St. Thomas to the wound in his side. St. Thomas is kneeling on the left-hand side and wears an undergarment of green and an upper of red. The two figures are within a pinnacled building having trefoiled arches. The painting is done with accuracy and care, the perspective being carefully drawn.

In 1438 Abbot John of Wheathampstead caused the Lady Chapel to be newly painted, and there are some slight remains of this work yet existing on the south wall, but they are too fragmentary to be made out. The painting of the wooden vaulted ceiling of the presbytery, which is also the work of the time of this abbot, has a ground colour of blue, with medallions, containing alternately the Holy Lamb and the Eagle of St. John in gold, the cognizances of this abbot, surrounded by a design of leaves, the whole giving a very fine effect.

In conclusion I should like to remark that the whole of these paintings were a little while ago getting into a very bad state. If anyone still thinks that varnish will preserve mural paintings let him visit St. Alban's abbey church. The paintings in the nave were sized and varnished about the time of their discovery. The heat from the gas had dried the varnish, which was flaking off, carrying with it the colour from the pictures. Under the advice of our Fellow, Professor Church, F.R.S., I tried one or two experiments on the paintings, and eventually I applied a specially prepared size, warm, to the flakes of varnish which was sufficient to soften them, and by dabbing them I was able to carry them back into their places. It was rather a trial of patience, but the result has so far proved satisfactory. On the few paintings which had not been varnished I sprayed a

[a] The inscription below the painting, now almost obliterated, is given by Mr. Ridgway Lloyd in his paper on the paintings before referred to. It is taken from the prayers after Mass in the Sarum Missal, and is as follows:

Mors tua, mors Christi, fraus mundi, gloria celi
Et dolor inferni, sint memoranda tibi
In cruce sum pro te; qui peccas, desine, pro me;
Desine, condono, pugna juvo, vince, corono.

solution recommended by Professor Church[a] for renewing the lost medium used with the paint, and which brings out the colour, which has been satisfactory.

I should like to take this opportunity to express my thanks to Professor Church for the trouble he took in helping me to preserve these paintings. I have also to express my most sincere thanks to Miss Monica F. Gray for the very careful copies to scale of the paintings, which she has kindly prepared, without which my paper would have had but little interest.

[a] See Report by Professor Church to the Committee of the Society for the Protection of Ancient Buildings.

XI.—*The London Charterhouse and its old water supply.*
By W. H. St. John Hope, *Esq., M.A.*

Read 1st May, 1902.

It is written in the fifth volume of the Minute Books of the Society that on Thursday, 1st May, 1746:

Mr. Birch brought an old draft in a Parchment Roll done in the year 1511 of all the Stone-Wells then at Clerkenwell. This Mr. Vertue was desired to take home and give some account to the Society the next meeting: the Roll is the property of Francis Godolphin, Esq.

Mr. Vertue was apparently not able immediately to carry out the wishes of the Society, and it is not until Thursday, 28th January, 1747, that we meet with a further entry in the minutes:[a]

Mr. Vertue brot a Drawing for the Society with the ffollowing Note; Sometime past this antient Role was brought to this Society, by the Revern'd Mr. Birch, desireing that somebody would consider it, in order to explain of what place, or view it is. It was put into the hands of Mr. Vertue; who has discover'd it to be a Survey of the Wells, waters of St. John's Clerken Wells, and those belonging to the Charterhouse London with a Veiw or Plan of their House, as it was, with the Cells and Chapter House. A Copy of it is here represented according to this antient original, there being no remains of this House, but this Shadow.

Vertue's drawing, which is still among the Society's Collections, represents only a part of the original, and a note on it in Dr. Stukeley's handwriting explains: "This old Role contains four Skinns of Parchment of which this Coppy is about half." The note continues: "the Role it Self is lately got into the possession of . . Man Esqr. Master of the Chartreuse. Ao D. 1747." The account of the

[a] Vol. v. 167.

restoration of the roll to its ancient resting place at the Charterhouse is, however, more fully recorded on the back of the original:

> Given us by the Hon^ble^ Francis Godolphin Esq^r^. 1748. Given to the Hospital and lodged in the Evidence House 1767 by Samuel Salter Master into whose possession it came from the estate (?) of Nicolas Mann Esq. Master who died 1753.

The original roll is now in the custody of the Rev. W. Haig Brown, LL.D., as Master of the Charterhouse, who has most kindly allowed it to be again exhibited to the Society, together with a later duplicate copy which has been preserved with it. This duplicate apparently was not shown to the Society in 1746.

The two rolls were exhibited to the London and Middlesex Archæological Society on the occasion of its visit to the Charterhouse in 1867, and subsequently formed the subject of a paper by the Ven. Archdeacon Hale in the *Transactions* of the Society for October, 1869.[a] They are there correctly described as showing the plan of the course by which water was brought from Islington across the fields for the supply of the monastery of the Charterhouse.

The London Charterhouse was founded in 1371 by Walter lord Manny, K.G., seemingly at the suggestion and perhaps by the help of Michael of Northburgh, bishop of London, who by his will made four months before his death in September, 1361, bequeathed the sum of £2,000 "to found, build, and complete, as soon as my executors can do it, a certain house of the Order of the Charterhouse according to the site and manner of the same Order in the place called 'Neuchirche hawe,' where there is a church of the Annunciation of the Blessed Virgin Mary, which place and the patronage of the same I have acquired from Sir Walter Manny, knight." He also left to it certain ornaments when it should be finished, and bequeathed his patronage of the place and every right that he had or could have in it to his successors the bishops of London, praying them to supervise and overlook with diligence the ordination of the said house, and the making, building, and completing of the work.

There is no record of anything having been done to carry into effect the bishop's wishes, and Newchurchhaw seems to have reverted to the possession of Walter lord Manny, who on 6th February, 1370-1, obtained the royal licence to found there, *in solo suo proprio*, a house for monks of the Charterhouse.

The reason for the foundation as recited in Lord Manny's charter, which is dated 28th March, 1371, is sufficiently interesting to be quoted in full:

[a] Vol. iii. 309-331.

"Since there was lately a pestilence so great and violent in the city of London that the cemeteries of the churches were unable to suffice for the burial of persons dying of the same pestilence; being moved by piety and having regard to the danger and loss which at such a time has happened because there was not hallowed burial for the aforesaid dead and considering the need of pity on this account, of our special devotion, we have acquired thirteen acres and a rood of land without the bar of West Smithfield of the same city in a place called *le Spittle Croft*[a] but now called *le Newe Cherch hawe* for the burial of the abovesaid persons and we have caused the same place to be hallowed by the venerable father Ralph then bishop of the same city, in which place more than 50,000 persons dying of the said plague have been buried, and afterwards for the devotion which we had to God and his sweetest mother the Blessed Virgin Mary and specially at the feast of the Annunciation of the same blessed Lady Mother and Virgin, on which feast was the beginning of the restitution of joys that had been lost by the prevarication of our first parents, we have caused to be built in the same place a chapel in honour of God and of the said feast of the Annunciation of the Blessed Mary Mother and Virgin.

"And because we desire that according to our ordination devout prayers and divine services according to the form following may perpetually be made and continued in the same place, and that above all other religious we have a special devotion for the holy religion of the Order of the Charterhouse; therefore know ye that for the reverence and honour of God and of his most holy Mother and Virgin Mary and for the devotion which we have for the said feast of the Annunciation, and the affection too which we bear to the abovesaid holy religion, we by these our presents found and make a house of monks of the same Order in the place abovesaid which we call and will to be called in future the Salutation of the Mother of God in honour and perpetual memory of the blessed Feast aforesaid."

The founder proceeds to endow the new Prior and Convent with the thirteen and a quarter acres of ground that form the site, with the aforesaid chapel and all other buildings erected there to be built for their indwelling. He also gives them three acres of ground lying without the walls of the said place on the north for their indwelling aforesaid. This appears to be the plot called "No Man's Land," acquired in 1348 or 1349 by Bishop Ralph to serve as a burying ground for those who died of the Black Death. In it he built a chapel known

[a] It was so called because it had belonged to St. Bartholomew's Hospital, from whom Sir Walter Manny bought it.

as Pardon Chapel, from which the cemetery obtained the name of Pardon Churchyard.

The founder concludes by ordaining special remembrances for the good estate of his King, and of himself, his wife Margaret and their heirs, and the Bishop of London for the time being, while living, and after death for their souls and the souls of others, especially of Master Michael of Northburgh, formerly Bishop of London, and his successors, and of all whose bodies are buried in the place aforesaid.

Of the bishop's share in the foundation Manny unaccountably says nothing. We learn, however, from a bull of Pope Urban VI., granted to the Prior and Convent of the London Charterhouse, in 1378, that Bishop Michael "of good memory," was regarded as a joint founder with Sir Walter Manny in establishing a double convent of monks of the Charterhouse in Newchurchhaw.

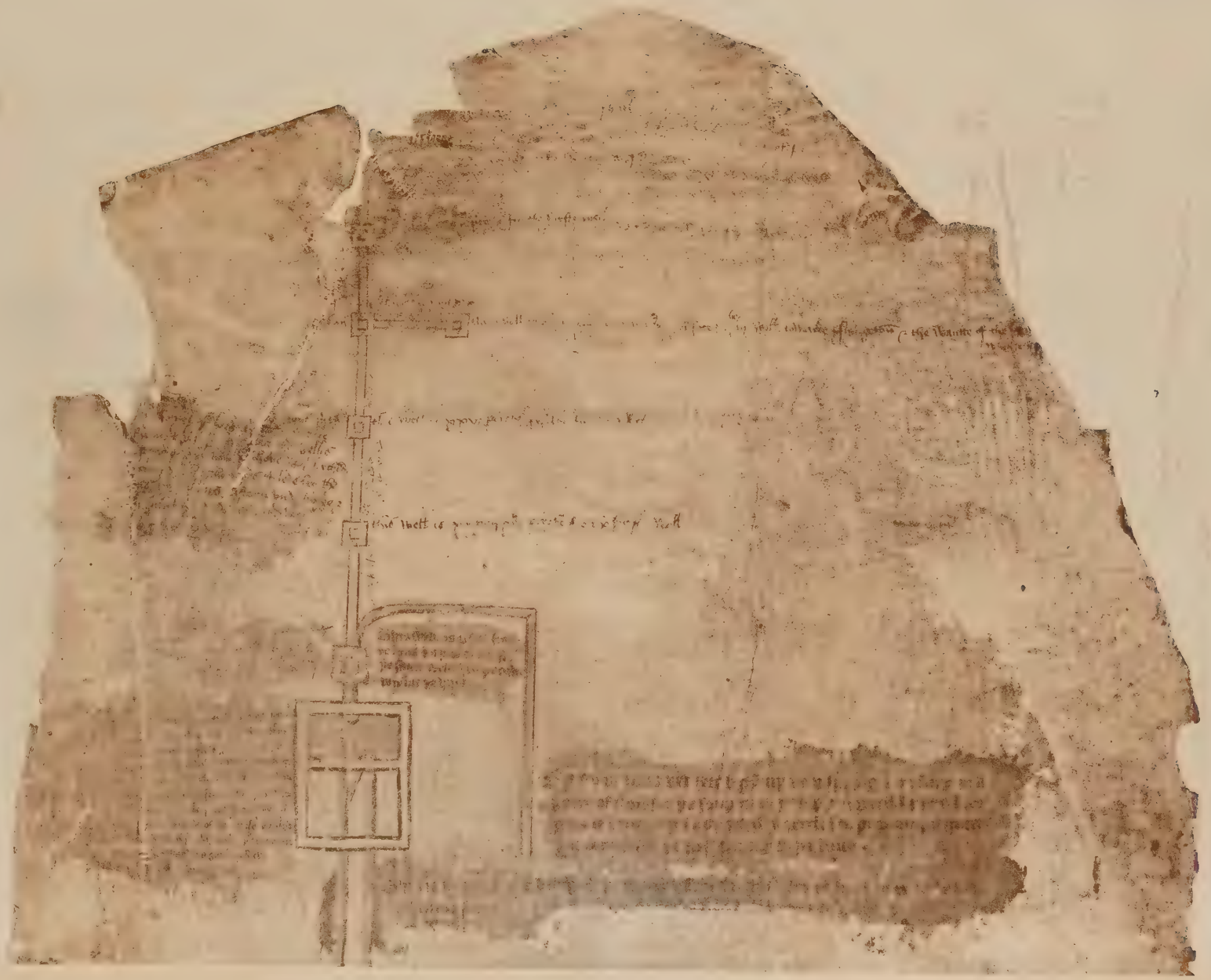
How the monastery was at first supplied with water is not recorded, but probably wells sufficed to begin with. It is doubtful whether any regular service was attempted while the buildings were in progress, and a gift of 260 marks in 1378

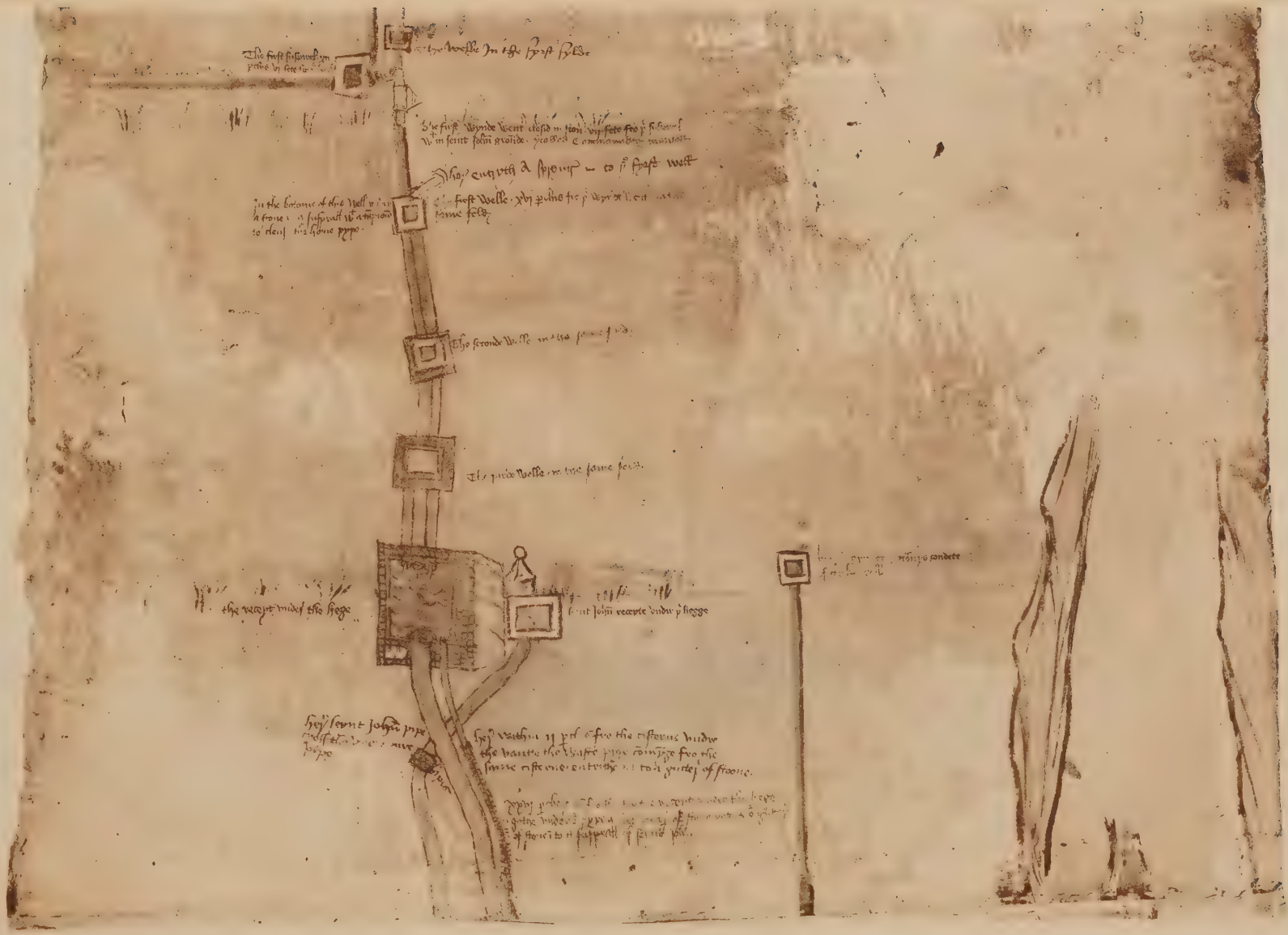
ad construendam seu ædificandam unam cellam cum porcione claustri et gardini competenti pro eadem et ad dotandum unum monachum qui habitabit in eadem cella,[a]

as well as a grant of land enlarging the site for the building of other cells, shows that the monastery was not then completed.

The provision of a regular water-supply was not begun until 1430. All the documents relating to the transaction are fortunately extant, and from them we learn that John Feriby and Margery his wife were empowered to grant to the Prior and Convent of the Charterhouse a fountain or spring and a portion of land 53 perches long and 12 feet wide in the vill of Islington, and the Prior and Convent to receive the same, and to make a subterranean conduit from the spring aforesaid through the said land and under the royal way as far as their monastery, on payment of 12d. yearly to the aforesaid John and Margery and the heirs of the said Margery. The springs were situated in the place called Overmead, in the manor of Barnersbury, then in the possession of John Feriby in right of his wife, who was the daughter and heir of Sir James Berners, knight. From the Barnersbury boundary to the king's way the conduit passed by arrangement through land belonging to the Priory of St. John of Jerusalem at Clerkenwell, and beyond the road through land belonging to the nuns of Clerkenwell and

[a] Thomas Madox, *Formulare Anglicanum* (London, 1702), 267.





MAP OF THE OLD WATER SUPPLY OF THE LONDON CHARTERHOUSE [m. 1.]
(Reduced)

Published by the Society of Antiquaries of London, 1902

another field belonging to the Prior and Convent of St. John's, called Whitwell beach meadow.

The subject of the water-supply of English monastic houses has been so fully and so lately dealt with[a] by our Treasurer, Mr. Philip Norman, in his interesting paper, printed in *Archaeologia*,[b] on an Ancient Conduit-head in Queen Square, Bloomsbury, that I need not enter upon it again here.

Mr. Norman's paper, it will be remembered, refers mainly to the water-supply of the Greyfriars Monastery in London, the course of which, from the existing conduit-head at Bloomsbury to the monastery itself by Newgate, is so carefully described in the chronicles of the house. The special reason for so careful a record is given in its headline: *ut sciatur posicio canalium aqueductus*, "that the position of the pipes of the aqueduct may be known."

The monks of the Charterhouse also placed on record the course of their water-supply, but in an entirely different way, in the form of an elaborate pictorial plan with explanatory notes; in much the same fashion as the monks of Christchurch, Canterbury, did in the twelfth century, when their water system was remodelled under Prior Wibert. The plan also depicts the sources of the water supplies of the Priory of St. John of Jerusalem and of the Clerkenwell Nunnery, which had already been tapped; the monks of the Charterhouse had therefore to seek for their supply further to the north.

The original roll, which is of vellum or parchment, is 9 feet 11 inches long and 1 foot $8\frac{1}{2}$ inches wide, and is made up of four membranes, measuring respectively $30\frac{1}{2}$, 31, $28\frac{5}{8}$, and $32\frac{1}{4}$ inches, stitched together with an overlap of about 1 inch. (Plates XXI.-XXIV.)

The copy, which is on stout parchment, is somewhat broader than the original, being from 23 to $23\frac{1}{2}$ inches wide, and is now only 8 feet 9 inches long. Like the other it was made up of four skins, but the fourth is lost. The remaining three measure 34, $37\frac{1}{8}$, and $37\frac{1}{4}$ inches in length respectively, and are sewn together like the other roll.

The first membrane of the original (Plate XXI.) has suffered mutilation at the top and down the left side, but the rest of the roll is complete.

The drawing on the roll, which is in ink emphasised by colouring, represents, first, a series of wells, as they are called, and springs, connected by a stone gutter conducting the water to the first receipt. From this the water passes on through a further series of wells by means of a lead pipe with a gradual increase of volume, so that the pipe is first doubled and then trebled before reaching the

[a] In 1899. [b] Vol. lvi. 251-256.

second receipt. It is continued thence without further interruption to the conduit or fountain in the middle of the great cloister of the monastery, from which it is distributed to the various buildings.

In order to show clearly the exact course of the pipe, which throughout is from north to south, the drawing also shows the lines of the roads and other physical features near or through which it passed, as well as the relation to it of the pipes and receiving houses of the other monasteries which obtained their water from the same gathering ground.

The course of the pipes is accompanied throughout by an interesting series of notes descriptive or explanatory of their position and adjuncts. These notes are the work of several hands, and have apparently been added from time to time, as necessity required, to mark alterations or additions. To render them the more legible these notes have at one time been treated with some chemical which, if it has preserved the writing, has somewhat disfigured the appearance of the roll with large patches of brown stain, and made it exceedingly difficult to photograph.

The first and most important set of notes contains the original explanations of the course and arrangement of the pipes. These notes are written in two hands, a bold and neat text hand, and a neat but smaller script hand. For distinction these may be called hand A and hand B.

It is evident from a careful examination of the head of the roll that all the earlier notes were in the bold text hand, but these have for the most part been erased, and another series written in in quite a different hand. For convenience this may be called hand C. The date of these alterations must be subsequent to 1512.

Additions in other hands will be noted in the description of the roll.

The drawing seems to have begun, according to the copy, with a square to represent the first well. From this started the watercourse, which is denoted by a narrow stripe coloured blue.

The original note in hand A is completely obliterated, and that written over in hand C is now only partly legible and in part torn away, but with the aid of the copy it can be read as follows :

[Thys well ys a large well and] when it shall be openyd for the cl[ensynge of y^{e} same yt muste be opennyd oñ the syde] towarde London & the hous of stone the whiche rec[eavythe the water of the same well and of the other] wellys & spryngs betwyx the same well & the same hous of stone [worke in a gutter of stone]

Against the well, the copy tells us, was written, probably in hand B, "fons j^{9}."

The well was evidently therefore a small covered tank fed from an adjoining spring.[a]

Just below the first well a short branch enters the gutter from the north-east. An explanatory note, in hand C, says:

This sprynge enteryth into the gutter of stone that comythe fro the fyrst [well] by [the space of ij perches and dī]

A little below is "fons ij^{o}" [c], denoted by a square set athwart the gutter. Against it is written, in hand C, over an erasure of a note in hand A:

this well is ix perche fro the furste well

Of the erased note there may be read the final words ". . . . . perches fro þe hous," which suggests that whereas the dimensions in the second hand are measured from the first well, those in the first hand were measured from the house.

Another note in the first hand followed, but is hopelessly erased. Over it is written apparently in hand C:

tante agatur in ostensione hujus carte extraneis

We next come to "fons iij^{o}" [c], with the note [c]:

This well is xvij pche fro the furst well

From it a branch gutter strikes at right angles eastwards to another well "fons iiij^{o}" [c], with the accompanying note [c]:

this well is opynnynge is j perche & dī fote fro the iij well towarde yslyngtoñ & the wautte of the sam[e well gothe towarde þ^{e} stone þ^{e}] which app[erythe above the grounde][b]

The next well, "fons quintus," has both its number and note written over in hand C an erased note of hand A:

this well is xxvj perche fro the furste well

The erased note ended with the words ". . . . of þe hous."

The note to the next well, "fons vj^{o}," is:

this well is xxxiiij & dī perche fro the furst well

On the left or west side of the gutter, between wells 5 and 6 is the following memorandum in hand C:

In the yer' of lord M[cc]ccc & xj^{o} & in the next yer' followȳg all the wellis & stone

[a] These wells or *fontes* seem to have served as settling tanks before the water reached the head conduit.

[b] The parts in brackets are torn away and supplied from the copy.

gutters a bove the hous wer serchid & clensid & all the pipis of lede fro the hous unto the new cisterne under the hegge & [xxx]ij pche beyond homeward wer newe made & leyde

Along the west side of the gutter is written in a different hand from any of the foregoing :

fro the fyrste well unto the howse of recete muste be breeke

On the left of the gutter this note is also written in the same hand :

xiij perches fro the laste well a greate pyepe off lede kepe the other pypes in course yf the home pype (shal ?) be stope

Neither of these notes occurs in the copy, which must therefore have been made before they were added.

The well south of "fons vj^{9}" is of larger size than those north of it and is accompanied by the following note in the original hand :

This well is v fete fro þe hous & a pipe of lede fro þe same welle ī to þe cist'ñ wiþīne þe hous

Into this well ran the contents of another spring by a channel coloured a deep blue, the position and direction of which are described by the following original note :

Est fro þe hous xxx fete begȳniþ þe v spring & it rēnyþ in a goter of ston fro þe souþ in to þe norþ. ij perch̄ & x fete. & fro þens it retornyþ and goþ West ij perch̄ ī to þe principal goter þat comiþ fro þe first spring to þe hous.

The mention in this note of the fifth spring suggests an inquiry as to the other four.

Besides the well into which the water of the fifth spring ran, the drawing now shows six other wells, and one spring between the first and second wells. Out of these eight springs it is impossible to make only four.

The explanation becomes evident on a careful examination of the roll; namely, that all the original first portion of the watercourse, with its wells, springs, and notes, appears to have been erased and re-drawn.

In the new drawing the gutter is differently tinted and the wells are smaller and more neatly drawn. The spacing of the erasures also shows that the original wells were fewer in number, and the sixth well and its note, and the note to the fourth well are clearly additional where nothing was written before.

In the present state of the roll it is not possible to say what the first arrangement precisely was.

The rearrangement of the wells and springs was perhaps due, either to a demand for an increased supply, or to a necessary increase in the number of sources through the gradual failure of the original springs.

The "house" to which reference has been made several times is immediately to the south of the last described well, and as we shall see presently can be identified with the well-known White Conduit of later times.

It is shown on plan only, as an oblong building standing north and south, divided unequally by a cross wall. The smaller and northern half is coloured blue and was the cistern or reservoir. The lead pipe from the last well discharges itself into this through a perforated rose. From the cistern issue two pipes: one from the middle of it; the other from the south side with a perforated head.

Against the house is written, in hand C, the following interesting description of it:

This hous stondith fro þ^e^ first spring sou þ^e^ lyne ryght xliij pchis [& an half *crossed out*] and w^t^in þe hous is a cisterne of lede & in þe bottũ þ^o^of is a hole to awoide þ^e^ waste watir bi a pipe of lede whan nede is whiche pipe goo þ^e^ sou þ^e^ lyne right xij pchis & .vj. fete. in to þe first suspirel þ^t^ stondiþ in þe diche þ^t^ deptiþ þe groũde of seint John & þ^e^ groũde of barnerisbery. and in þe same diche bo þ^e^ þ^e^ suspirel & þ^e^ waste pipe awoyde ther wat' in a gotir of breke

The waste pipe is continued southwards a short distance from the conduit house, and has written along it (in hand B) "þe waste pipe." It then runs into a large square receptacle tinted light blue, with a centre of darker hue, described (in hand B) as

The first suspirel . xij pchis . vj fete fro þe hous

From the west side of this suspiral[a] issues a strong blue stripe which is continued at right angles to the former course of the pipe to the margin of the roll. Along this section is written, upside down, in hand B:

The goter of breke for þe waste wat'

[a] A suspiral was no doubt in the first place a vent or breathing-hole (*spiramen* or *spiraculum*) to let the air out of a conduit, to avoid a supposed danger of the pipes being burst by the compression of the air within; and in that sense the *Promptorium Parvulorum* has "Suspyral, of a cundyte. *Spiraculum vel Suspiraculum.*" (At Durham the word was shortened to "susper.") But in the drawing under notice the suspirals seem to have served the further purpose of settling tanks, and as a means of relieving the pipes from the pressure of the water. This must have been considerable, there being a fall of about 64 feet from the White Conduit to the distributing cistern in the great cloister of the Charterhouse, a distance of almost exactly a mile.

The supply pipe which issues from the conduit house is labelled, in hand B, "þe home pipe." It is also accompanied by a note in the bold original hand:

This is þe pype þat bringith þe watir home & it goith fro þe hous to þe first suspirel evene south.

A little below this note another small well, clearly an addition, is drawn athwart the pipe, with the note in a new hand:

The welle In the fyrst fylde

Immediately below it the pipe throws off a curved branch to the suspiral on the west, and then enters a small building with a gabled roof, apparently all of stone. On this line there is drawn across the left hand half of the roll a rude semblance of a hedge. The ditch of this was on the north side, and in it was a brick gutter into which the suspiral and the waste pipe voided their water.

Here then we leave the ground of Barnersbury granted by John and Margery Feriby, and enter upon ground belonging to the Priory of St. John of Jerusalem at Clerkenwell. The dimensions thus far do not agree with those of the grant, the length of the 12-foot strip being 53 perches or 874½ feet; whereas the distance from the first spring to the conduit is given in the roll as 43½ perches and to the suspiral 12 perches and 6 feet further, that is 921¾ feet or 47¼ feet more, exclusive of the length of the conduit. These dimensions, however, belong to the alterations of the roll, and may differ from those originally written thereon through the readjustment of the first sources, as suggested above.

On leaving the small building the home pipe is shown with a round grating over it. The whole arrangement is described in a note in hand B:

The first wynde went[a] closid in ston .vij. fete fro þe suspirel wtin seint Johñ groũde. ẏcalled Commaunderꝯ mantell

Below this note is an added line, apparently in hand C:

Her' entryth a spryng in to þe fyrst well

with a short branch pipe rudely drawn. The well itself is shown as a square, coloured in two tints of blue. On the right is the note:

The first welle. xvj pchis fro þe wynde went in the same feld

and on the other side:

In the botome of this well undir a stone is a susprall wt a tãpioũ to clense the home pype.

[a] "Wind vent" here seems to be applied to what in other places would be called a suspiral. See note on preceding page.

From the first well the pipe is doubled as far as the next, which is entitled:

The seconde welle in the same feld

and so on to the next, which is drawn of larger size and entitled:

The þirde welle in the same feld

From this the pipe becomes triple to the second conduit. This is placed on another line of hedge, and described as:

the receyt under the hege

This is written in hand C, over an erased note of four lines in hand B.

The "receyt" or conduit house is shown as an oblong structure of red brick with a gabled roof coloured light green (which covered a stone or brick vault), and a small door in the south end. The west side is omitted so as to show the plan of the reservoir, which completely filled the interior. The three pipes are discharging water into it from the north, while from the south issue an enlarged home pipe with perforated head and a small waste pipe. In the bottom of the pool is a large plug or tampion for drawing off the water for cleansing purposes. The erased entry no doubt described all these features.

Immediately to the east of the "receyt" is a smaller square tank full of water, which was evidently roofed over, described (in hand B) as

seint Johñ receyte undir þ^{e} hegge

Still more to the east is another square cistern inscribed (also in hand B):

here bigynneþ þ^{e} nõnys condite of clerkynwelle.

From it a dark blue pipe extends in a southerly direction.

On the right hand side of the roll is shown a highway bordered with green.

Immediately below the large conduit house, or "cistern under the vault," as it is called, the Charterhouse home pipe and the St. John's pipe cross one another, the latter being the lower. A stone inscribed "lapis" marks the place, as well as the note (in hand C):

her' seynt Johñ pipe crossithe undir our pipe

The two pipes then continue for some distance side by side. The waste pipe crosses St. John's pipe with the home pipe and runs parallel with it for some way, but under different conditions, which are explained by a note (in hand C):

her' within ij pchis fro the cisterne undre the vautte the waste pype cõmỹge fro the same cisterne. entrithe in to a gutter of stoone.

This gutter is nevertheless tinted red as if of brick.

Under the note just quoted is another, written by the same hand but at a different time:

xxvj pche & dī fro the fro the [*sic*] receyt under the hege gothe under o^{r} pype a litel guter of stone oute of o^{r} gutter of stone ī to a susprall of seynt Johñ

This, however, is not shown in the drawing.

The main gutter continues a little distance further and then passes under the home pipe and runs on between it and St. John's pipe. (Plate XXII.) The change of position is marked by the note (in hand C):

the gutter of stone is on the este syde of our pipe. & at xxxv perche fro the cisterne undir the vaulte it turnythe to the weste syde of our pipe.

The pipes and the gutter run side by side for some way further, and then the gutter and St. John's pipe turn to the south-west, the home pipe going straight on. A series of interesting notes occur here. First the change of direction is recorded (in hand B):

here at þ^{e} ston deptiþ seint Johñ condite from ourys[a]

Outside the bend of the gutter is drawn a large stone with the note (in hand C):

a cxxxviij pche fro the hous þ' stande a stone on the weste syde of our pipe & ther' deptith the gutter.

The St. John's pipe is carried on to a building drawn in plan, like that at the head of the roll, entitled (in hand B):

The first hous of seint John condite

Above it is a double barred cross.

The supply pipe goes on to another building roughly drawn in outline only, entitled (in hand B):

The seconde hous of seint Johñ condite

but after continuing a little way beyond it ceases, as of no further consequence.

The stone gutter extends beyond the departing stone nearly as far as St. John's first conduit house and then ends.

The Charterhouse home pipe, although shown as straight, seems to have actually changed its direction too at the departing stone; there being written along it (in hand B):

here a ȝens þ^{s} mylle hille oure home pipe brekyþ somdele in to þe est.

[a] Above this note a much longer one has been crossed out and then erased.

the gutter of stone vpon the
este syde of oure pipe · & at yonder
perishe fro the cisterne vndow th
water it ren vnthe to the weste
syde of oure pipe.
The first howe of
seint John cordite

MAP OF THE OLD WATER SUPPLY OF THE LONDON CHARTERHOUSE [m. 2.]
(Reduced)

Published by the Society of Antiquaries of London, 1902

The mill hill was apparently the cause of the separation of the pipes. It is shown as a round mount, with an encircling ditch and hedge, but without the splendid windmill depicted in the copy. A note in hand C describes it as

the myll hill in the cõmaunderȩ mantillis

which, as we have already seen, is the name of the fields which the pipes traverse.

We must now return to the nuns' conduit. This extends southwards from its source for some way, its identity being made plain by the inscription:

The condite of the nõnys of clerkynwell

as far as a small square cistern lettered "petra," probably to indicate its material. The pipe then deflects south-west to a second cistern inscribed (in hand B):

þe receyte of clerkynwell condite

Close to this the pipe passes under the Charterhouse pipe, a fact recorded by the note (in hand B):

here $\overset{xx}{iiij}$. &. xiij. pchis fro þe wynde went by seint Johñ receyte undir þe hegge þe home pipe crossiþ þe condite of clerkynwelle

The latter is also described as

þe pipe of clerkynwelle goyng undir oure home pipe

It extends a little further and then ceases. Both it and the St. John's pipe were intended to be continued in the drawing, the former in its south-westerly direction, passing under the latter, which was going south. They are, however, not carried beyond the second membrane.[a]

A little below the head of the nuns' conduit the highway bordering the roll forks: one line continues south along the edge of the roll; the other gradually bends round in a south-easterly direction. Its identity is established by the inscription (in hand B):

The hygħ wey from Iseldon toward london.

Near the receipt of the Clerkenwell conduit is a gate in the hedge which lines the road, inscribed:

Porta in pratum domus sancti Johannis

[a] The course of the St. John's pipe remains in outline as far as the lower edge of the membrane, with traces of a suspiral above. The course of the nuns' pipe may be similarly traced. But in tinting the drawing the limner has discontinued the nuns' conduit before reaching the crossing of the pipes, and roughly daubed in the St. John's pipe as following the same direction as the other.

A little nearer London the road crossed the line of the Clerkenwell pipe, which was carried under it as described in a note:

here o^{r} pipe go$\flat$ in a pece of oke kev'ed w^{t} a creste of oke ovyr $\flat^{e}$ diche in to $\flat^{e}$ hye wey And so lyne right fro $\flat^{e}$ pece of oke to $\flat^{e}$ suspirel in $\flat^{e}$ nõnys felde $\flat$orugh the hye wey $\flat^{e}$ pipe go$\flat$ in closid in hard stone of ba . . . .

The suspiral is duly shown on the other side of the road as a square set to one side of the pipe, with an inlet and outlet for the water. By it is the note (in hand B):

$\flat$is suspirel stondi$\flat$ in $\flat^{e}$ side of $\flat^{e}$ diche $\flat^{t}$ depti$\flat$ [$\flat^{e}$ departi$\flat$ *struck through*] $\flat^{e}$ nõnys felde of clerkynwelle & $\flat^{e}$ hye wey $\flat^{t}$ go$\flat$ fro londoñ to Iseldoñ.

Just above this note is drawn by the wayside another large mount, encircled by a hedge, with the inscription (in hand B):

The mylle hille in $\flat^{e}$ nõnys feelde of clerkynwelle

but a later hand (C) has added:

this hyll is made pleyne w^{t} the ffelde

In the copy a round building with low domed roof is shown standing upon it, with a pathway up to it from a gate opening from the road. There is no sign of such a structure in the original.

From the suspiral the conduit runs without interruption through the nuns' field, then crosses a brook or ditch into

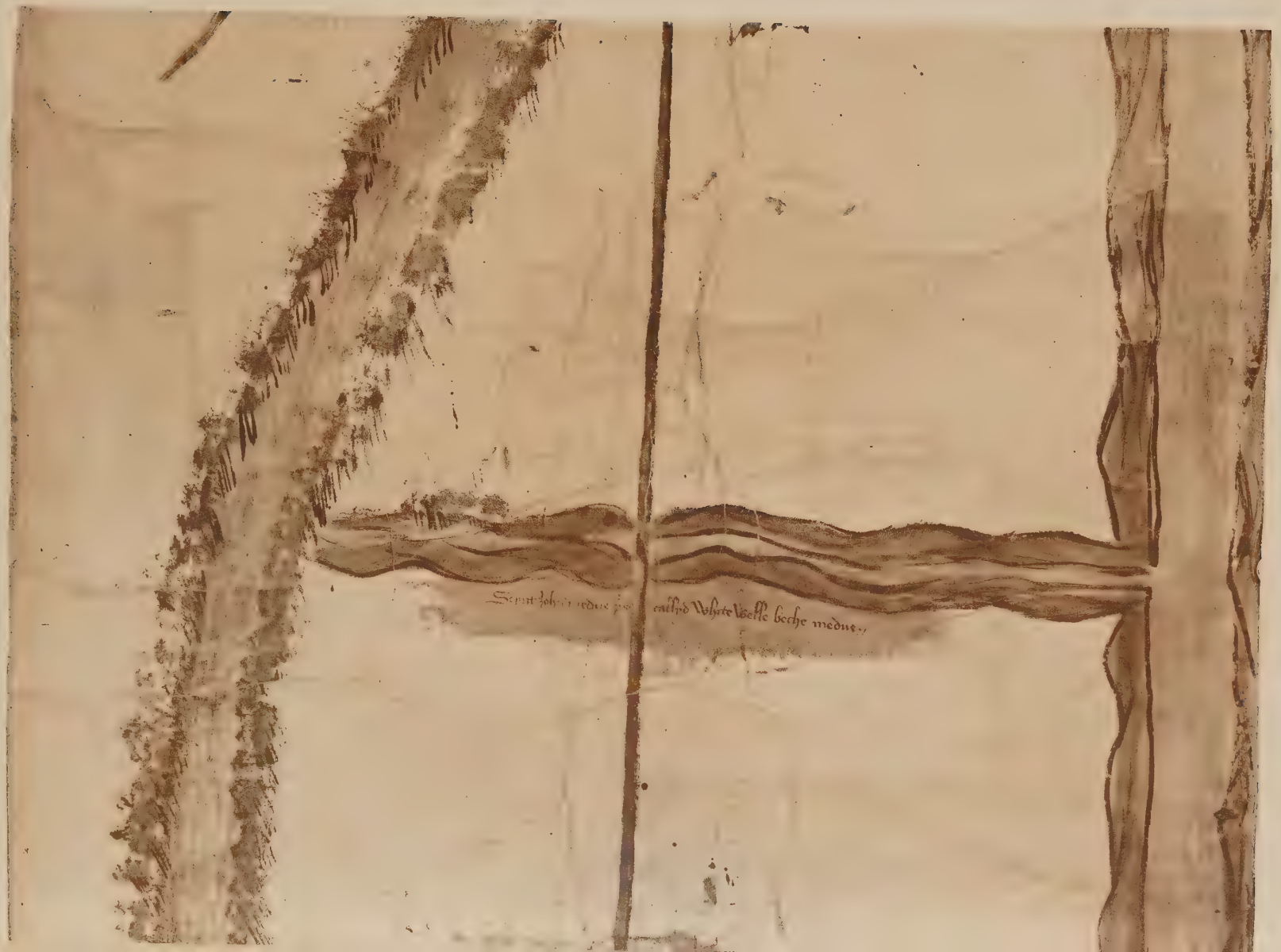
Seynt John medue $\flat^{t}$ is callyd White Welle beche medue (Hand B.)

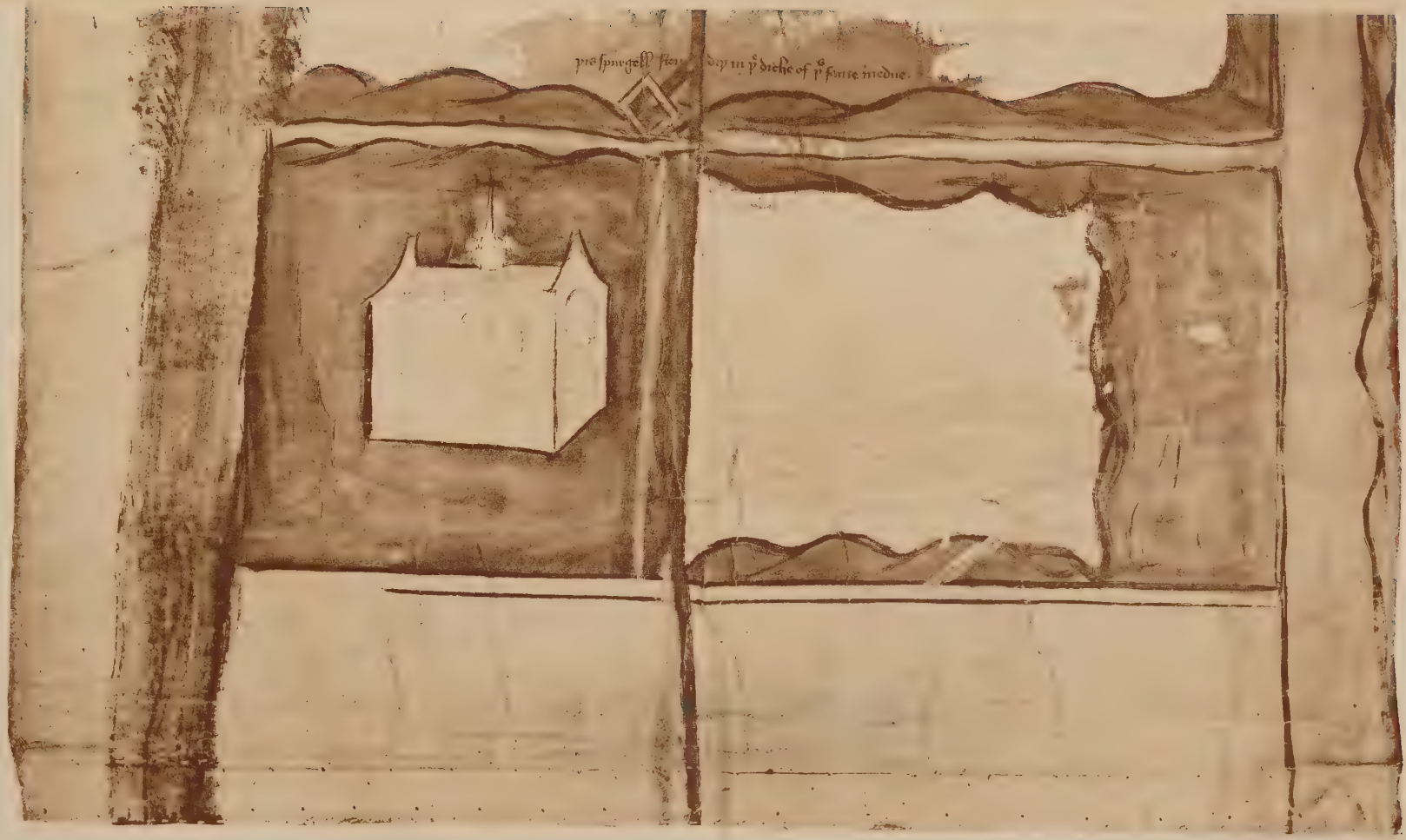
Both this meadow and the nuns' field lie between the two roads above mentioned.

On the south side of the meadow is another ditch, at which the pipe throws off a short branch on the west to a square tank, inscribed (in hand B):

$\flat$is spurgell stondi$\flat$ in $\flat^{e}$ diche of $\flat^{s}$ same medue.

The ground which the pipe traverses after passing the "spurgell" has in its western half an oblong building standing east and west, with gabled roof and central bell turret surmounted by a spire. (Plate XXIII.). It has a window towards the east and two in the south wall. In the copy the building is drawn somewhat differently and inscribed "Pardon chappell," and so we are able to identify it with the chapel built upon "No man's land" in 1348 or 1349 by bishop Ralph of Stratford.


Scrut Johis redus p
cuilfrd Vhyte Selle beche medue



MAP OF THE OLD WATER SUPPLY OF THE LONDON CHARTERHOUSE [m. 3.]
(Reduced)

Published by the Society of Antiquaries of London, 1902

To the east of the pipe the copy has a note also not found in the original:

barleyte Grownd wth the lyttyl Cottage joynynge unto Islyngton Waye

Finally the pipe enters the precinct of the Charterhouse. (Plate XXIV.)

The peculiar arrangement of the monastery is very quaintly but vividly shown. First we have the great cloister, with the cells and gardens of the monks on the west, north, and east sides; other cells, with the laundry, chapter house, and church on the south side; and the little cloister, etc. on the south-west. Further south are the buildings called Egypt, the gatehouse, and a building called the Windmill.[a]

The great cloister is shown as square, which we have every reason to believe was its actual form, and surrounded by what were no doubt covered alleys, such as existed at the sister house of Mount Grace in Yorkshire; though the roofs are not shown in the drawing. The cells of the monks were entered by doorways from the cloister alleys, and are distinguished by letters, beginning at the south end of the western range, which contained seven cells, lettered A to G. On the north were seven more cells, lettered H to O, and on the east seven others, lettered P, Q, R, S, T, V and X. Each cell stands in the corner of its garden as at Mount Grace, but the subdivisions of the cells are not shown, nor the little turn or hatch, which certainly existed (since two or three remain) beside each cell door, for passing provisions, etc. through. Two more cells, lettered Y and Z, are placed in the eastern end of the southern range, and these have the square turn drawn beside the doors. The total number of cells was twenty-four, the sacrist's cell completing the series.

In the centre of the great cloister is an interesting structure to which the pipe is finally led.

It consisted apparently of an octagonal[b] stone base, rising from a moulded plinth, supporting a corbelled-out erection, evidently of timber, of somewhat larger size than the base, with panels round its lower half and windows in the upper half, two on each side. The roof is shown as pyramidal, with incurved sides, and surmounted by a banner for a vane with a large cross above.

What notes originally were written have been erased and a much longer

[a] For a valuable paper on "The Ancient Buildings of the Charterhouse," by Mr. G. Wardle, see *Archæological Journal*, xliii. 231-242.

[b] The building is drawn as if hexagonal, but the accompanying description says it was eight-sided.

descriptive memorandum inserted in a late and crabbed hand on either side of the structure. That on the north reads:

M^{d} that thys age ys made viijth square and in that[a] square which ys [from the *struck through*] north[b] warde dyrectlye from the suspyrell the mayne pype dothe come & Rysythe up into the age in the myddϱ of a fayre square Cestron of leade. Wh' yt Runnythe downe out of the (*erasure*) in the top of the age into a [*pyp struck out*] another pype on the weast syde of the same Wills whych dothe s've the howse

That on the south side reads:

M^{d} that the doore Goyng into the age. benethe dothe stand dyrectlye southe warde and the doore into the age above Openythe east warde and the Goyng up therunto ys by a ladder / and above ys a Greate [Md that *struck out*] Cestron square of leade and in the myddϱ therof dothe Ryse the mayne pype and at the heyht

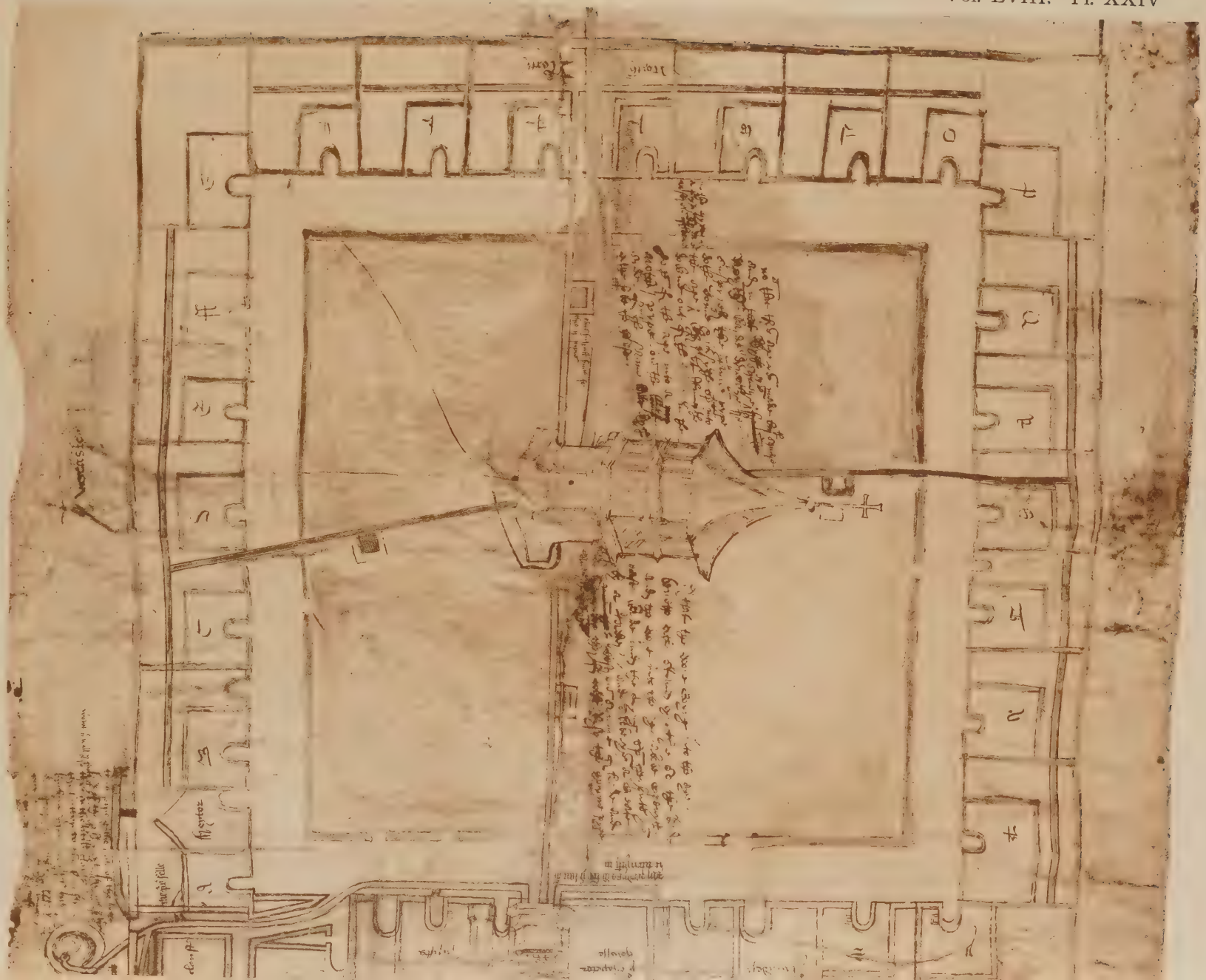
From these notes we learn that the structure was the conduit house of the monastery, here called by the rare and unusual term "age,"[c] and that in its upper half was a square lead cistern into which the main pipe, whose course we have so carefully followed, discharged itself. From the cistern descended the supply pipe,

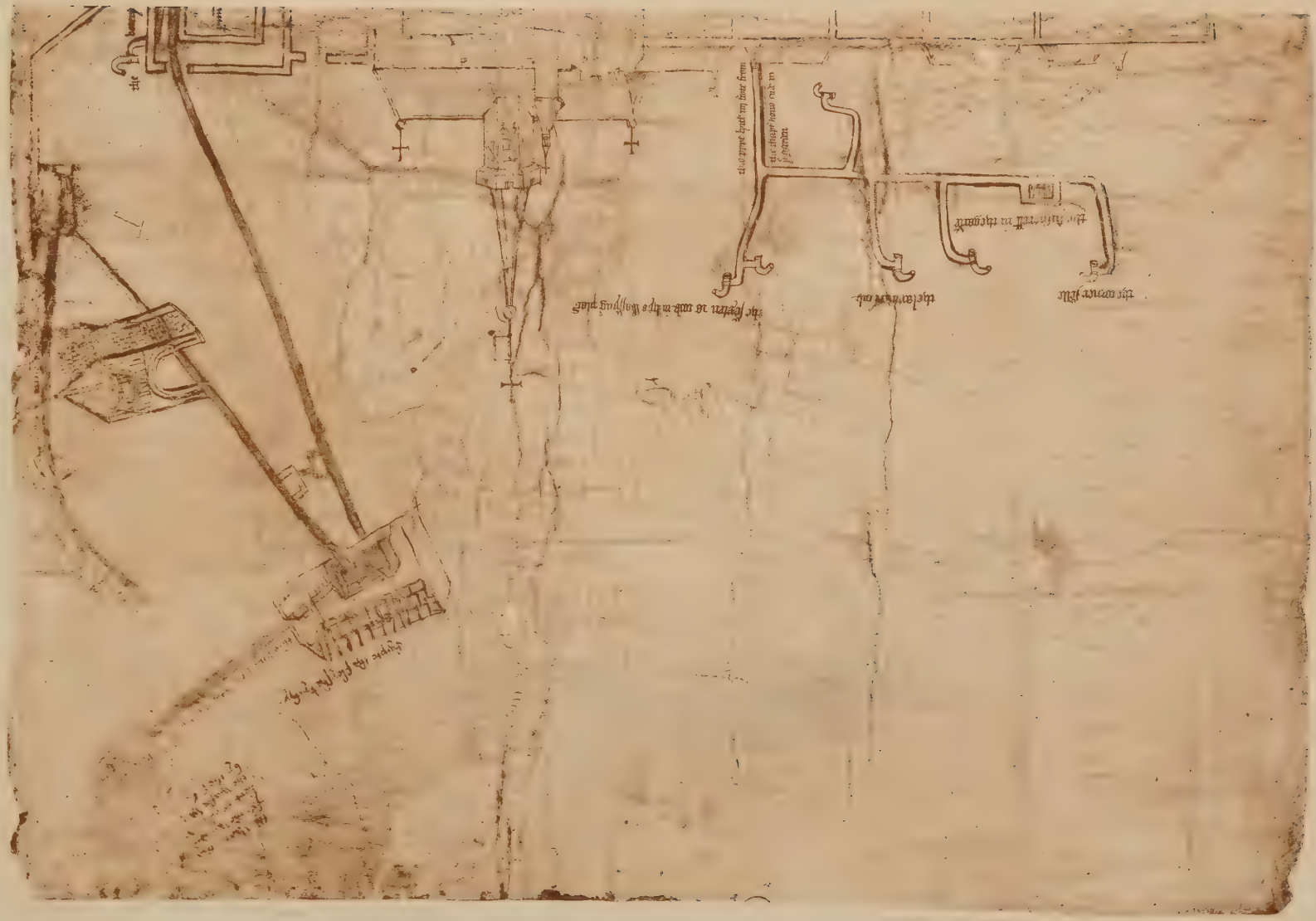
[a] An erasure here. [b] Written over an erasure.

[c] The word "age," meaning apparently the distributing cistern of a conduit, seems to be identical with the Latin *augea*, a word used in grants relating to the water-supply of London in the fifteenth century. Thus the Abbot and Convent of Westminster in March 1439-40 granted to the Mayor and Commonalty "unum capud simul cum quibusdam fontibus . . . . una cum *augeis* sesperalibus fontibus et cisternis congruis ac convenientibus ad includendam recipiendam et habendam aquam salientem ac emanentem in quodam clauso nostro vocato Oxlese infra terram et precinctum Manerii nostri de Padyngton . . . . erigere construere ponere et habere valeant imperpetuum" (Patent Roll, 21 Henry VI. pt. 2, m. 2). Another grant to the Mayor and Citizens by the King in June 1443 refers to the building of "quandam Crucem spectabilem in Westchepe dicte civitatis *pro quadam augea eisdem conductibus tanquam mater deservitura*" (*Ibid.* m. 14).

The former of these quotations occurs in an *inspeximus* of Henry VI., dated 24th June, 1443, printed in Rymer's *Fœdera* (xi. 29-33), on whose authority Du Cange has the following: "AUGEA VENTOSA, Spiramentum, Gall. *Ventouse.* Dicitur de canalibus fontium, quibus parvum additur foramen, quo interclusi venti elabantur, a Gallico *Auge*, Alveus, canalis: *Augeæ Ventosæ, suspirales fistulæ, pipæ et aliæ machinæ, per quas tota aqua, veniens et discedens a capitibus et fontibus prædictis, recipitur et currit . . . . dictas Augeas Ventosas, suspirales fistulas, pipas et alias machinas . . . . perscrutari, mundari et reparari*, apud Rymer, tom. 11, pag. 29." [*Glossarium Mediæ et Infimæ Latinitatis* (Niort, 1883), i. 476, s.v.] In the text as entered on the Patent Roll there is no such punctuation as has misled Du Cange, the words reading: "nonnulle augee ventose suspirales fistule pipe et alie machine," etc.

Crabb's *Universal Technological Dictionary* (London, 1823) gives: "Augea (*Archæol.*) a cistern for water."





MAP OF THE OLD WATER SUPPLY OF THE LONDON CHARTERHOUSE [m. 4.]
(Reduced)

Published by the Society of Antiquaries of London, 1902

which was divided beneath into branches that served the house. The age was furnished with two doors: one in the south face on the ground level to allow of access to the pipes; the other in the eastern face of the upper story, and reached only by a ladder, for access to the cistern. Neither of these faces is seen in the drawing.

The fragments of a similar conduit house, but hexagonal in plan, were discovered by myself in the middle of the great cloister at Mount Grace in 1900.

From the age issue four branch pipes, one to each of the cardinal points. Midway between the age and the buildings each pipe has on one side a square tank. The object of this is explained by an inscription against that of the north pipe:

This suspall s'vith for thes ij pipis

That is, the main pipe and the service pipe, which here lie side by side.

The west, north, and east service pipes pass under the cloister wall to the gardens behind the monks' cells, and then branch right and left so as to serve each cell.[a]

The southern pipe runs to a prettily designed lavatory built into the cloister wall. In the upper half was an ornamental cistern, probably of metal, with a row of taps in front along the bottom. Under the taps was a trough to carry off the waste carried by a projecting stone base, semi-hexagonal in plan, and flanked by buttresses or pilasters which held up a stone canopy overhead. There is a lavatory recess still existing in the corresponding place at Mount Grace.

From the lavatory cistern descended two other supply pipes.

The one was carried eastwards past "þ^e chapetor howsse" (written in hand C) and then turned into the garden of the sexton's or sacrist's cell which adjoined it, as it also does at Mount Grace.

The position of the pipe beyond this point is shown in a curious manner. The buildings it supplied were (i) the sexton's cell, (ii) "þ^e launderi," (iii) a cell beyond, lettered Z, and (iv) the corner cell, lettered Y. The pipe, however, is drawn clear of the buildings, in the open ground to the south, but with notes that make all clear. These notes are written in a hand quite different from any other on the roll, and were perhaps added by the artist who made the drawing in order to explain his own peculiar way of showing the position of certain pipes.

[a] At Mount Grace, where the arrangement of the pipes must have been similar, every monk had a tap fixed in a small arched recess in the wall on the cloister side of his garden, usually under a pentise.

Starting from the lavatory we read of the pipe that:

xvj ȝerdys & dī frō þ^e^ lavoi's it turnyth in

After the turning in of the pipe another note tells us that

this pype lyith iiij foote from the chapt' hous ende in þ^e^ garden

It then turned eastward again to the corner cell, but with branches right and left. The first branch terminates in two taps or cocks, one above the other. Against the latter is written:

the sexten is cook in hys wassyng' plac^s^

The second branch on the same side also ends in a tap, described as "the launderi cok." The third branch clearly served cell Z, and the fourth, as a note tells us, "the corner selle." Between the third and fourth branches is a small tank described as "the susperell in the gardē."[a]

On the opposite side of the pipe is a single branch, ending in a cock like the others, but without any explanatory note. As each of the four buildings is provided for, this branch may have passed through the outer wall for use on the other side.

The second of the pipes from the lavatory turns westwards, past a cell lettered "sacrista" and a doorway beside it, and then makes a bend through another doorway. It here traverses what seems meant for a passage and continues westward along the north side of a court entitled (in hand C) "pvū claust" (*parvum claustrum*). It here throws off a branch to the cell marked A, over which is written (in the same hand as that above noted) "the p^i^o^r^ selle," next to which is a gabled building lettered (in hand C) "ffreytor." Just beyond the branch to the prior's cell the pipe makes a bend to the south-west and also throws off another branch. This passes southward along the west side of the little cloister, then turns through the outer wall and ends in a cock. A note in the same hand as before, which tells us that this is "the botery cok," marks the approximate place of the buttery, but this is not shown in the drawing. From the buttery branch the pipe continues south-westwards beyond the little cloister for some distance with a branch on the north side to a large circular tank, indicating "the brew-house." It then turns southwards to an oblong structure, placed north and south, which may indicate a cistern. From this there issue two pipes. The one, distinguished by a brown

[a] A small tank has lately been uncovered in one of the gardens at Mount Grace.

tint, runs southwards to a small suspiral, beyond which it bends round towards the south-east and then ends. A note written alongside (in hand C) explains that

this pipe goethe outte of the cisterne by the kychen doore & s'vithe elmys & the hertis horne [a]

The other pipe issues from the south-east corner of the cistern and passes out of the monastery through the archway of the gatehouse. It then changes its blue tint to brown, and continues past a suspiral to a building lettered "Egipt," with the inscription over it, "Egipte the fleyshe kychyn," both in hand C.

Into this building there enters another pipe, also tinted brown. It issues from the garden of the cell lettered B, passes the frater and the prior's cell, and then turns in to the little cloister. It traverses the west walk of this, issues from a doorway on the south, and then makes straight for "Egipt." Just before reaching "Egipt" it passes a small suspiral placed close to that on the pipe from the gatehouse and connected with it by a short branch.

The course of the pipe just described is indicated by a long note in hand C written near its starting point and extending to the edge of the roll, where it becomes illegible from mutilation and rubbing. What can be read is as follows:

this pipe gothe oute of the bake syde of the cell next the p^{i}ors w^{t}yn ij foote of þ^{e} ende of þ^{e} freyto^{r} all alongest w^{t}owt þ^{e} wall & so throw the litill cloyst^{r} by the buttry to the fleyshe kychyn uppon a lofte into a cistern and owt of this pype þt goothe to egypt at the ende of the freyto^{r} comyth . . lenth yn to the . . . ende of the pclose or entre . . . . . for egypt . . . . . .

The building called Egypt is shown as a gabled structure with a tiled roof, containing a tank or cistern, perhaps raised somewhat from the floor, or "uppon a lofte" as the note just quoted says, into which the two pipes already described discharge their contents. From the cistern issues another pipe, which runs through a small suspiral or tank within the building and passes out of it through a round opening in the gable end. An accompanying note explains that "this pipe gothe to the Wyndmyll." The Windmill, which is so lettered, was probably a tavern. It is drawn as an oblong building with gabled ends and a tiled roof, and a door with a square label over it on the north side. Above the Windmill is a note in hand C telling us that

the water that gothe fro the Wyndmyll to the white hert is of no dote [b] but onely the waste water of the wyndmyll by the sufferaunce of the charter house

[a] The Elms and the Hart's Horn were probably two taverns without the gate.

[b] *i.e.* value.

From the dimensions and notes that accompany the plan it would seem to be quite an easy matter to lay down the course of the pipes on the map, but as a matter of fact there are difficulties which at present can not be got over. The position of the "house," known in later times as the White Conduit, can be fixed, since it or its successor as rebuilt by Thomas Sutton was standing as late as 1831.[a] It is also easy to show the relative positions of the wells north of it, but of the points to the south the distances from it of only four are given, viz. the suspiral immediately south of "the house," the windwent next to it, and the first of the wells in the Commanders Mantells, and the stone by the windmill hill that marked the divergence of the Charterhouse and Clerkenwell pipes. Did we know the approximate site of St. John's "receyte under the hegge" it would be possible to lay down a number of other points for which distances are given, but the extensive works of the New River Company have obliterated many features that might otherwise have survived on old maps. Moreover, the old course of the Charterhouse pipes is now built over. The land known as Commanders Mantells was a great field belonging to the Priory of St. John and extended southward for a considerable distance from the Barnsbury boundary, and eastwards along St. John Street Road. It seems to have been subdivided by a transverse hedge and ditch.

The long and narrow tongue between the Goswell Road and St. John Street and St. John Street Road, with the Charterhouse at its southern end, belonged partly to the nuns of Clerkenwell and partly to the Priory of St. John, and their boundaries can be approximately laid down, but it is uncertain where the Charterhouse pipe crossed the "king's way," now St. John Street, into the nuns' field.

Further study by those acquainted with the early topography of London may lead to the eventual elucidation of the difficulties in the way of tracing the lines of pipe.

[a] It stood on the site of a row of houses in the parish of Holy Trinity, Islington, on the south side of the street now (1902) called Denmark Road, but formerly White Conduit Street. See the map, engraved in 1841, in *The History and Topography of the parish of St. Mary, Islington*, by S. Lewis, junior (Islington, 1842), where the "White Conduit House" itself is shown. It had, however, been destroyed in 1831 (*op. cit.* 396).

XII.—*The Castles of the Conquest.* *By* J. H. Round, *Esq.*, *M.A.*

Read 23rd January, 1902.

By way of introduction to the subject I have the honour of bringing before you I will trace as briefly as possible the controversy as to the origin of those remarkable strongholds, found throughout the three kingdoms, of which the essential feature is a moated flat-topped mound. This was the "motte" of mediæval French, the "mota" of mediæval Latin.

The story begins with the well-known theory which "the great master of military architecture," as Mr. G. T. Clark was styled by Professor Freeman, was, he claimed, "the first to set forth,[a] and which he applied throughout the two volumes of his *Medieval Military Architecture*, a work published, at Mr. Freeman's suggestion, in 1884. This theory, as I hope to show you, has met with extraordinary acceptance; it has been widely and influentially adopted as established beyond dispute. These moated mounds, according to Mr. Clark, are all subsequent to the coming of the English to this country in the fifth century, and they are none of them later, as the other limit, than the first half of the tenth century. Whether he had formed any clear idea as to when, or by whom, within those limits, these mounds were actually raised seems extremely doubtful. In his preface, indeed, we find them styled "the moated mounds of the ninth century," and he usually assigned them to the period of the Danish invasions; but owing to his using the term "Northmen" for the first English settlers as well as for the later Danes, his meaning is often obscure. Yet he held, at least, that in the sixth century Wihtgar "probably threw up the work which bore his name," now "known as Carisbroke,"[b] and that "when the English lord took up his

[a] *Medieval Military Architecture*, i. *vii.*

[b] *Op. cit.* i. 15.

abode within a Roman camp or station," he "threw up his bank in one corner," as at Pevensey, Leicester, Cambridge, and several other places where these mounds are found;[a] and in the closing words of his paper devoted to "the shell keep," he styled these mounds "the early residences of the adventurous Northmen who laid the foundations of the English people."[b]

In spite, however, of these expressions, Mr. Clark assigned, I think, these moated mounds, in the main, to the long struggle of the Danish invasions in the latter part of the ninth century and the early part of the tenth. And his reason for doing so was this. He found in the Anglo-Saxon Chronicle, throughout the course of that struggle, frequent mention of a *burh* being "wrought" as a defensive work. "Of the fifty *burhs* mentioned in the chronicle, about forty-one," he wrote, "have been identified," and at "twenty-two are moated mounds, mostly with base-courts also moated."[c] From this Mr. Clark jumped to the following essential propositions:

> What then is a burh? A burh is a moated mound with a table top, and a base court, also moated, either appended to one side of it or within which it stands. But the burhs, the dates of which are on record, and which are thus described, are but a very few of those found all over England, in the lowlands of Scotland, and on the marches bordering on Wales, which, from their precise similarity in character to those actually identified, must be assumed to be of like date and origin, and may therefore safely be attributed to the ninth and tenth and possibly to the eighth centuries, and to the English people, that is to the Northern settlers generally, as distinguished from the Britons and the Romans.[d]

I have been careful to give you here Mr. Clark's own words, because, overlooking their confusion, which does not concern us here, of the first English settlers with the later Danish invaders, they show clearly his two propositions: first, that the *burh* was a moated mound; second, that all the *burhs*, that is the moated mounds, were raised at one period, which closed in the tenth century.

The first proposition, that the *burh* of the Chronicle was always a moated mound, was accepted without hesitation by Professor Freeman and Mr. Green. I need only cite the case of Warwick, where Æthelfleda wrought a *burh* in 914. Of this we read in Mr. Freeman's work:

> The Lady wrought between the town and the river one of those vast artificial mounds which played so important a part in the early history of fortification . . . . The mound

[a] *Medieval Military Architecture*, i. 18.
[b] *Ibid.* 22.
[c] *Ibid.* 145.
[d] *Ibid.* 23.

itself still remains, a monument of the wisdom and energy of the mighty daughter of Ælfred, while the keep of William has so utterly perished that its very site can only now be guessed at.[a]

And again:

> At Warwick the mound of the Lady of the Mercians still stands; for the castle of the Conqueror we seek in vain.[b]

Mr. Green was every whit as positive that the *burh* of the Chronicle was a mound. Almost in Mr. Freeman's words he wrote of Æthelfleda that

> she reared between town and river one of those mounds which marked the defensive warfare of the time, and which stripped as it is of every trace of the fortress with which she crowned it . . . . still remains to witness to the energy of the lady of Mercia (p. 202).

From his *Conquest of England* published in 1883 I hasten to three important works all published, by a strange coincidence, in 1898, and all eager in adoption of Mr. Clark's theory on the mounds. In *Early Fortifications in Scotland*, Dr. Christison, secretary of the Society of Antiquaries of Scotland, asserted that moated mounds or "motes were *the* fortresses of England during the Saxon period," and referred to Mr. Clark as his authority. Sir James Ramsay, in the most recent of the detailed histories of this country in the early middle ages, cited Mr. Clark throughout on the *burhs* and followed him most absolutely.[c] Lastly Professor Oman, who is actually supposed to be our greatest authority on

[a] *Norman Conquest*, iv. 191.

[b] *Ibid.* v. 648. The first of the above quotations continues thus: "Most likely it stood in the void space between the mound, the gateway, and the later castle." It is thus abundantly clear that, at Warwick, Mr. Freeman considered the castle of the Conqueror to have been something quite distinct and apart from the old English mound. On the other hand, at Wallingford, we find him writing: "One of the vast mounds which speak of later days of English victory under Eadward the Unconquered stood ready to become at William's bidding the kernel of a stronghold from which the new invader might hold Englishmen in bondage" (iii. [1875], 543). And, lastly, at Chester, under the heading "Restoration by Æthelflæd 907," he writes without hesitation of "the mound on which the Norman castle was now to supplant her earlier stronghold" (iv. [1871] 313). Comparing this with the passage on Warwick quoted in the text from the same volume, we see, I think, clearly that he had not thought out the subject, and that his vague language leaves it in doubt what he really believed as to those mounds and their treatment by the Normans, if indeed he had then any definite belief on the subject.

[c] *The Foundations of England*, i. 272, 452; ii. 152.

mediæval warfare, ardently adopted Mr. Clark's theories in his *Art of War in the Middle Ages*.[a] You will see then that these theories practically hold the field and that their overthrow would affect several standard works.

And now from the *burhs* of the Danish wars I pass to the castles of the Conquest. Here I speak of the Norman Conquest, as did Professor Freeman, in the sense of a process which began with Normans who settled in England under the Confessor, and which was going on for many years after the landing of William. The old crude conception of the castles raised at this period is seen very clearly in Professor Freeman's work; but the peculiar horror with which he viewed them was part of his well-known ἦθος, of a cast of mind which accurately reflected the middle-class Liberalism of the period of the great Exhibition. Primogeniture he detested; feudalism he loathed; castles were for him always filled with "devils and evil men." I will read you the Professor's words:

> The hateful castle was wholly new. The stern square tower, perched on its height, ... was before all things the badge of the Conquest, the sign of the dominion of the stranger. It was the castles which sheltered the devils and evil men. . . . . It was the castles which contained those dens of torment where men pined as no martyrs had pined in the days of old. . . . . The castle was the badge of the great change, social and political, to which the Norman Conquest had put the finishing stroke.[b]

And he ends by referring to the feelings of our "forefathers" at "the un-English importation of Eadward's foreign favourites . . . . when Richard the son of Scrob raised the first castle on English ground,"[c] that is, Richard's Castle.

I want you to observe Mr. Freeman's insistence on the fact that the castles of the Conquest were something, in English eyes, absolutely strange and new. In describing the building of Richard's Castle, if Richard's Castle it was, which I doubt, in 1052 he was moved to write as follows:

> The building of castles is something of which the English writers of this age frequently speak, and speak always with a special kind of horror. Both the name and the thing were new. . . . . For such a structure the English language had hitherto contained no name. But now the tall, square, massive donjon of the Normans, a class of buildings whose grandest type is to be seen in the Conqueror's own Tower of London and in the more enriched keep of Rochester, began . . . . to rear itself over the dwellings of Englishmen. . . . . Such

[a] See below.

[b] *Norman Conquest* (1876), v. 648.

[c] *Ibid.* 649.

strongholds, strange to English eyes, bore no English name, but retained their French designation of *castles*.[a]

So long as it was possible to maintain this old crude view, Mr. Clark's theory of the *burh* would arouse no difficulty. Mr. Freeman argued, plausibly enough, that as the word "castel" was a new introduction, it must evidently have denoted something "quite distinct from the familiar *burh* of earlier times."[b] And

[a] *Ibid.* (1870), ii. 136. Compare the remarkable passage on the destruction of the castles at York by the English rebels in September, 1069: "Wherever a Norman castle had been reared it was the object of the bitterest of all hatred, as the living embodiment of the foreign yoke. We now look on those massive square keeps, wherever they are left to us, as among the most venerable and precious of the antiquities of our land. . . . . But when those towers were still newly built, when their square stones were still in their freshness, when the arches of their doors and windows were still sharp and newly cut, they were to our fathers the objects of a horror deeper even than that with which France in the moment of her uprising looked on the Bastille of her ancient kings. They were the very homes of the Conquest; within their impregnable walls the foe was sheltered. . . . . In the eyes of the men of those days the castle was an accursed thing, to be swept away from the earth by the stroke of righteous vengeance, as when liberated Syracuse swept away the citadel from which her Tyrants had held her in thraldom. On the very day on which the army reached York the two castles were broken down. We are not to suppose that the whole of the massive walls of two Norman keeps could be razed to the ground in the afternoon of a day of battle. But they were doubtless dismantled, wrecked, and left in a ruined state, so that they could not, for some while at least, be again used as places of defence" (*Ibid.* [1871], iv. 270). Yet of one of these "square Norman keeps," with their "massive walls," the writer himself had asserted, some pages back (p. 241), that it "must have been a hasty structure of wood or of the roughest kind of masonry. For we read that it was built during the king's sojourn of eight days" earlier in the year.

Compare with Mr. Freeman's dreams the plain words of Mr. Clark on the subject of these York castles. On the later of the two he wrote (*op. cit.* i. 86, ii. 545): "The other mound, the Bayle Hill, south of the river, was also fortified by William, but in haste and with timber only, which does not appear ever to have been replaced with masonry." "That this was a mere stockade is clear from the fact that it was completed in eight days, before he left the city. . . . . The defences were familiar to the English, and would not strike them with the same terror as the stony and lofty keeps which the Normans had lately begun to build in Normandy, and which William had commenced in London." Here I may incidentally observe that, according to Mr. Clark himself, the Tower of London was not commenced till some ten years later (i. 138; ii. 205), and that even this date is earlier than can be proved. But keeping to York, we find Mr. Clark pressing, very properly, the evidence as to its castles (i. 42-3), and concluding thus: "It is clear, from the time occupied by the whole sequence of events, that these castles were not of masonry. Moreover, the masonry of the present York keep contains nothing that can be attributed to the eleventh century, but much that is far too early to have replaced a really substantial keep or curtain of Norman date had such been built. Upon the great and artificial mound of Bayle Hill, the site of the second castle, there is neither trace nor tradition of any masonry at all."

[b] *Ibid.* 605.

if it denoted a rectangular keep, this of course was so. But unfortunately it did not; and that is where the trouble begins. Any archæologist could tell you to-day not only that Richard's Castle never had a square keep, but that this type, so far as we can find, was not even introduced into England till five-and-twenty or thirty years after the Normans had raised their Herefordshire "castel" in 1052. And the land had been covered with castles meanwhile by their countrymen.

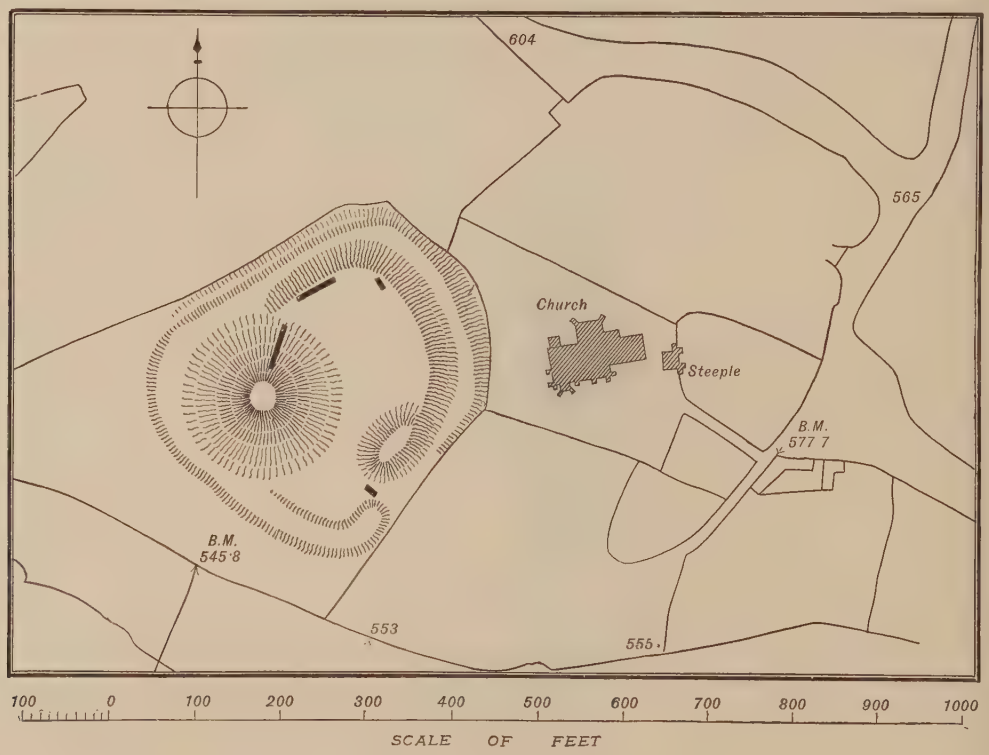


Fig. 1. Plan of Richard's Castle, from the Ordnance Survey.[a]

[a] The above plan has been kindly prepared by Mr. W. H. St. John Hope from the 25-inch Ordnance Map, and it may therefore be relied on as accurate. It differs seriously from the plan given in Mr. Clark's work, but his own description there facing it proves that the plan is erroneous.

When correctly depicted, as here, Richard's Castle presents the normal features of these fortresses, and may be taken as a type of the Conquest castle described in this paper. The appended base-court or bailey is "semi-lunar" in form, a shape produced in these strongholds by placing the moated mound with its proper ditch astride on the *enceinte*. The same arrangement will be observed in the plan of Pleshey below.

Mr. Clark observed that 'Richard's Castle is one of a series of works common on the Welsh

What then were the castles of the Conquest? Mr. Clark set himself to answer this question in the third chapter of his work. He observed that in their existing remains there is hardly ever a trace of masonry that can safely be assigned to the period, and he forcibly argued that, speaking generally, "Those castles which belong to the Norman period are too late to be the work of the Conqueror or his personal followers, and too early to allow of any preceding work in Norman masonry (which was usually sound and solid) having been constructed and swept away."[a] What then, he asked, was the solution? He was forced to the conclusion that the shortness of time, of material, of skilled labour, drove them to adopt and repair the *mottes* or castle mounds which, according to him, were already plentiful before ever a Norman came here. In his own words, where there was a mound, "they seem to have been content to repair the existing works, usually of timber only, and to have postponed the replacing of them with a regular shell till a more convenient season, which in many cases did not occur for a century."[b] And there were not, he even held, half a dozen instances in which they did not select an existing mound as their castle.[c] Thus we discover that, after all, the castle introduced by the Normans, that new, that strange, that terrible thing, was only the old palisaded mound standing where it stood before. Mr. Clark even suggests that it may have been the Conqueror's policy to place his followers in strongholds with which the English were so familiar.[d]

Observe into what contradiction Mr. Clark's theory had led him. As a dutiful follower of Professor Freeman he was bound to hold that Richard's Castle was something new and fearful. "The English," he wrote, "who were aware what engines of local tyranny were the Norman castles, could not but have regarded with dismay the lofty walls and towers, which made impregnable a place already strong, and converted a well-known *burh* into a castle such as they

border and the Middle Marches. Such were . . . . Kilpeck and Ewias Harold" (ii. 401). And of Ewias Harold he wrote that "on the western margin is placed a conical table mound . . . . which necessarily . . . . reduces the eastern side to an open crescent-shaped platform" (ii. 40). This platform corresponds, it will be seen, with the base-courts of Richard's Castle and of Pleshey.

The immediate proximity of Richard's Castle to the churchyard is another feature of common occurrence, and points to such castles having been used as the seats of local lords (*mottes seigneuriales*).

[a] *Op. cit.* 41.

[b] *Ibid.* 42.

[c] *Ibid.* 44.

[d] *Ibid.* 44-45.

had heard of with dread, but had not before seen" (ii. 402).[a] Yet he hastened, in the very next sentence, to admit that "it is difficult to say" what Richard really built, and that "lofty walls and towers" had no foundation but a guess.

Indeed, when writing of Kilpeck Castle, in the same county and of the same type, Mr. Clark suggested that "the early Norman lords contented themselves with a residence and defences of timber, and did not build for a century or so after their occupation, when the shell keep was constructed. It is not probable that this was preceded by any earlier work in masonry, as Norman buildings were substantial and durable" (ii. 165). And at the opening of his chapter on the shell keep he maintained that it was usually later in date than the rectangular type for the reason that the early Norman lords had found the English palisade crowning the English mound a sufficient defence for their purpose.[b]

I cannot find that Mr. Freeman ever really faced the question; but vague as his language is, he cannot have liked a theory which threatened to rob him of his castles.[c] When you are clamouring for stone donjons "filled with devils and evil men," it is annoying to be offered only the harmless necessary *burh*. The word "castel," he insisted, meant "something quite distinct from the familiar *burh* of

[a] So too he wrote, in another place, of Richard's Castle that "as this castle was a great cause of offence, it probably was something different from the fortified timber houses of the English thanes, and may well have been of stone, after the rising Norman fashion" (i. 393).

[b] "A tolerably close examination has failed to discover, either at Arundel or elsewhere in England or in Normandy, any masonry of very early character, probably none that can safely be attributed to the eleventh century. The fact seems to be that the early timber structures, which are known to have been erected originally on the moated mounds, were found to be very defensible, and so were retained by the Norman lords until they were able to replace the timber by masonry" (i. 139). So too, "it may safely be said that, save a fragment of wall at Corfe, no military masonry older than that event (the Conquest) has as yet been discovered" (i. 37). This covers the remains of masonry at Richard's Castle, which he admitted looked later than 1052 (ii. 402). Indeed he elsewhere definitely stated that it has "no masonry of the age of the Confessor, nor is it probable that the keep was constructed before the age of Stephen, if so early" (i. 102).

[c] "I have already spoken of the extreme rarity of castles in England before the Norman Conquest, and of the general indignation which was awakened by the building of a single castle in Herefordshire by a single Norman adventurer. . . . . But now the age of castle-building fairly set in. It was William's policy to keep the conquered land in check by commanding every town and every important point by one of these fortresses. . . . . And, as we follow his steps, we shall see that at every stage of the Conquest, the building of a castle in a conquered town was ever the first work of the Conqueror's foresight" (*Norman Conquest* [1871], iv. 66). And again he speaks of the houses overthrown "to make way for the building of the castles which were in English eyes the special homes of wrong and badges of bondage" (*Ibid.* [1876], v. 40).

earlier times"; and he urged, as against Mr. Clark, that "stone fortresses" were well known in the eleventh century.[a] But the evidence he adduced was amazing. It consisted of a passage in which, he wrote, the stone fortress is "pointedly distinguished" from the wooden tower. In the year 1025 Count Odo of Chartres "turrem ligneam miræ altitudinis super domgionem ipsius castri erexit." On this Mr. Freeman comments: "The donjon itself was surely of stone." You will observe the word "surely." Why, the writer cannot even have known what a donjon was. Yet a chronicler whom he had studied, namely Lambert of Ardres, wrote of "motam altissimam, sive dunjonem eminentem, in munitionis signum firmavit et in aggerem coacervavit."[b] The "donjon" was the *mota* or moated mound, and is the name given it in later days by Leland at Southampton and elsewhere and by Dugdale at Warwick. Mr. Freeman, "surely," was thinking of "the mysteries of Udolpho."

But if Mr. Freeman had his doubts about Mr. Clark's theory, it has made at least, as I shall show you, one illustrious convert.

Our chief specialist on the Art of War as practised in the Middle Ages, who is now acting at Oxford as Chichele Professor of History, I mean Mr. Charles Oman, is apt to change his views somewhat suddenly and often. Those who will do me the honour to read my paper on "Anglo-Norman Warfare" will find that he has in turn produced four different theories on the so-called palisade at the battle of Hastings, each of them absolutely trustworthy and all of them mutually destructive.[c] It is the same, as I have shown, with the battle of Bannockburn.[d]

And so with the castles of the Conquest. So late as 1894 we find Mr. Oman writing that the Conqueror was induced "not only to erect stone castles himself, but to encourage his great tenants to follow his example . . . . that William and his great barons generally built in stone is attested by the remains that are

[a] *Ibid.* [1870], ii. 605-7.

[b] Mr. Freeman, indeed, could not mistake the significance of the word as used by Lambert. We find him writing: "As the Lady of the Mercians had done a few years before, he raised a mighty mound—'*dunio*,' 'firmissimus munitionis agger'—and girt it about with a twofold ditch. These words bring home to us that *dunio*, *donjon*, meant, first of all, the mota. the artificial *dune* or *down*, so characteristic of the earlier stage of fortification . . . . . The *dunio*, as we shall presently see, was primarily meant to carry only wooden buildings; at the outside it would never carry more than the shell-keep of Cardiff or Lincoln." (*Historical Essays*, 4th S. 171.)

[c] See my *Commune of London*, 43-8.

[d] *Ibid.* 299-301.

with us to this day."[a] But four years later we find Mr. Oman writing of "the palisaded *burhs* . . . . of Edward the Elder,"[b] and explaining that

> Hillocks or artificial mounds were trenched and palisaded. *Motte* (mound) seems to have been the general name for these structures among the Romance-speaking races; the English called them *burhs*. . . . . Such undoubtedly were the *burhs* of the English thegnhood which William the Conqueror found in existence when England submitted to him . . . . the greater part of William's castles were merely adaptations and additions to the old English strongholds. The masonry was added half a century later.

Mr. Oman goes on to assert that "undoubtedly the large majority of William's strongholds must have been palisaded *burhs* in the old English style," and acknowledges his "deep indebtedness to Mr. Clark's third chapter" (pp. 518-521).

In spite, however, of the ardour of the neophyte, you will see for yourselves that there is something wrong. If the normal castle of the Conquest was but the familiar *burh*, why was there no word for it in English? Why was it something new and terrible? Why did it excite horror and dismay, as even Mr. Clark admits that it did in the case of Richard's Castle? I have sometimes found in the course of my researches, as in the problem of the introduction of knight-service into England, that a theory, however influentially upheld, needs only to be clearly stated to break down of its own weight. And so when you strip from Mr. Clark's theory the vague language in which it was expressed, you find that it breaks down from its own inherent contradictions.

Let me remind you that this theory, the theory that the castles of the Conquest were but the English strongholds occupied and repaired by the Normans, rests on two propositions. The first is that the *burh* was essentially a moated mound, and that therefore some of the existing mounds were the actual *burhs* mentioned as constructed in the ninth and tenth centuries. The second and far more startling proposition is that every moated mound must, as a consequence of this,

[a] *Social England*, i. 328. Precisely the same view is taken by another writer in the same volume: "Conquered England was held down by dozens of castles, square keeps with walls of enormous thickness built of solid stone, and often relying solely on their own strength without being surrounded by any outworks. The English, in their revolts, could never storm one of the new castles. . . . . In the eleventh century the art of defence had quite outgrown the art of attack" (p. 301).

[b] *Art of War in the Middle Ages*, i. 517.

belong to that period. With the first of these propositions others, I shall show, have dealt; with the second I dealt myself in the *Quarterly Review* article which sounded, Mr. Hope tells me, the first note of opposition to the accepted theory on the subject. It is really difficult to say which is the more surprising, that Mr. Clark should ever have advanced, or that anyone else should have accepted, a proposition not only so baseless, but so wildly at variance with all our evidence on the subject as that these mounds were never erected after the earlier years of the tenth century. Mr. Freeman rightly cited against him the definite witness of

Fig. 2. The building of Hastings castle. From the Bayeux Tapestry.
(From *Vetusta Monumenta*, vol. vi.)

William of Jumièges that even in the days of the Conqueror's youth his nobles threw up mounds, "erexerunt aggeres," as their castles. The priceless witness of the Bayeux tapestry (fig. 2) shows us that he himself did so as soon as he landed in England;[a] and, to hasten on, I showed in my article, that more than a

[a] The legend on the tapestry is "jussit ut foderetur castellum at Hestengaceastra." The Anglo-Saxon Chronicle has: "Hi . . . . worhton castel æt Hæstinga port." Its phrase for the Herefordshire castle of 1052 is "gewroht ænne castel on Herefordscire."

century later, the Anglo-Normans in Ireland were still raising, as their castles, *mottes* or moated mounds.

I know of no more amazing example of the determination to sweep aside all facts and all testimony conflicting with a theory which itself is absolutely without foundation than is seen in Mr. Clark's treatment of the castles of the Conquest. We see the castle-mound rising on the Bayeux tapestry (fig. 2); we read in the chroniclers how William, at every stage of the Conquest "condidit," "firmavit," "stabilivit," "locavit," "construxit," his castles; we turn to Domesday and there we read how William or one of his barons made (*fecit*) a castle. And at these very places mentioned by these witnesses we normally find *mounds*. Mr. Clark, of course, was aware of this, but he swept aside the language of Domesday and the chroniclers alike, and insisted in paper after paper that these mounds were English. In vain does Orderic observe, in an often-quoted passage, "Munitiones (quas Castella Galli nuncupant) Anglicis provinciis paucissimæ fuerant," with the result, he adds, that the bravery of the English did not enable them to offer an effective resistance to the Conquest. All a mistake, Mr. Clark replies, "England, in this respect was exceedingly well provided—quite as well provided as Normandy" (i. 35); the country was "covered with strong places, which were, no doubt defended, and well defended with palisades . . . . . If at the Conquest no English stronghold held out it was not that such places were less capable of defence than those in Normandy, but that England was broken up into parties . . . . The conquest of England was made possible, not by the absence of strong places, but by the want of organisation for their defence" (i. 38-9).

It was thus that Mr. Clark disposed of unwelcome evidence; he either ignored it, or waived it aside. On the other hand his own evidence needs careful sifting, for it not only proves at times to be little else than assumption, but even takes the form of assertions contradicting one another. For instance, under Richard's Castle we read that Harold, in 1056, entered the Marches against the Welsh, and that at that time "his probable godson, Harold, the son of Ralph, held the Castle of Ewias Harold, the earthworks of which were constructed on the type of those of Richard's Castle" (ii. 402). But on turning back to Ewias Harold (ii. 42), we there read that (as was the fact) Harold the son of Ralph "was a mere child" at the time (1055), and had nothing to do, moreover, with Ewias castle till many years later. And yet we have only to turn back further to an earlier page of Mr. Clark's work (i. 108) to read of Ewias, that "The Harold

from whom it derives its distinctive name was an English proprietor before the Conquest," an assertion which would favour Mr. Clark's theory if it rested, as of course it does not, on fact.

I desire to call special attention to the words employed by the chroniclers and by Domesday. There is one instance in which we find the word "restaurarent" used by a chronicler; Orderic speaks of the men left by William at York "qui restaurarent in urbe castella." But this word is applied to the castles which William himself is recorded to have there constructed,[a] and which the rebels had broken down. This is exceedingly strong evidence that when the chroniclers applied such words as "firmavit" and "condidit" to the castles founded by William, the mound for instance that we see being raised on the Bayeux Tapestry, they did not mean, as Mr. Clark imagined, the mere occupation or even restoration of an existing English fortress. And Domesday Book supplies precisely the same evidence. To its normal word, the word "fecit," there is one striking exception. We read of the castle of Ewias Harold, "castellum Ewias" as Domesday terms it (fo. 186), that William Fitz Osbern "hoc castellum *re*firmaverat." Why? Because it stood in the very district where the Normans had begun building castles even under Edward the Confessor, and was, I have urged in my *Feudal England* (p. 324), the actual castle of Osbern Pentecost mentioned in the English Chronicle. Thus the one exception to the rule in Domesday Book proves that, as with the chroniclers, it used its words with care, and that when it said "fecit," it meant what it said, and did not mean "restored" or "adapted."

When we turn to later evidence, evidence of the days of Stephen, we find in the language employed striking confirmation of my view. Thus, for instance, in the second charter of the Empress Maud to Geoffrey de Mandeville (1142) we read:

> Concedo etiam eidem Gaufredo quod novum castellum quod *firmavit* super Luiam stet et remaneat ad efforciandum ad voluntatem suam. Concedo etiam ei quod *firmet* unum castellum ubicunque voluerit in terra sua . . . . et quod stet et remaneat.[b]

It is quite clear that the verb *firmare* is used here of the raising of a new castle, not of the repair of an old one. For strengthening the defences of a castle

[a] Orderic had said of the first castle, "in urbe ipsa munitionem firmavit," and of the second "alterum præsidium condidit."

[b] See my *Geoffrey de Mandeville*, 168. Compare the use of "firmavit" by Lambert of Ardres in the passage quoted above.

after it is raised the word used here is "efforciandum." So, too, in her earlier charter the Empress had granted to Geoffrey:

ut castella sua que habet stent ei et remaneant *ad inforciandum* ad voluntatem suam.[a]

But Stephen used, like her, the word *firmare* when it was a question of a fresh castle:

firmiter ei concessi ut possit *firmare* quoddam castellum ubicunque voluerit in terra sua, et quod stare possit.[b]

Again, when Henry, son of the Empress, granted a charter to Robert FitzHarding in or about the year 1153, it contained this remarkable clause relating to Berkeley:

pepigi ei *firmare* ibi castellum secundum voluntatem ipsius Roberti.[c]

So, too, we read of Hayles (Glos.) that Ralf of Worcester founded there a castle to the disgust of the monks of Winchcombe:

Tempore Regis Stephani, domino Simone presidente ecclesie Wigornensis, cum hostilitas vehementer ingrueret [1140-1150] quidam prepotens, Radulfus de Wirecestre, ... in Hailes castrum *firmavit.*[d]

Lastly, in the same reign, the very remarkable treaty between the earls of Leicester and of Chester contains the following clause:

Nec comes Cestriæ, nec comes Leecestrie debent *firmare castrum aliquid novum* inter Hinchelai et Coventre, nec inter Hinchelai et Hardredeshellam, etc. etc. . . . . nisi communi assensu utriusque. Et si aliquis in prædictis locis vel infra prædictos terminos *firmaret castrum,* uterque alteri erit auxilio sine male ingenio donec castrum diruatur.[e]

[a] *Ibid.* 91.

[b] *Ibid.* 175.

[c] *Berkeley Charters and Muniments*, 2.

[d] *Registrum monasterii de Winchecumba*, 65. Ralf, we read, founded there, at the same time, a church, and now "the meadow adjoining the church contains the earthworks of Ralf's castle" (*Bristol and Gloucester Archæological Transactions*, xxiii. 9). Mr. W. H. St. John Hope tells me that these are slight, so that the castle was probably destroyed as "adulterine" under Henry II., not being licensed to "stand and remain." The proximity of church and castle should here again be observed.

[e] *Vincent's Discovery of Brooke's Errors*, 302-3. It is strongly suggested by the second clause that the castles contemplated would be rapidly raised and could not, therefore, be of masonry.

Sufficient evidence has now been given to show that the phrase *firmare castrum* meant to erect a castle on a new site.

And now, if we try to arrive at a conclusion, what form will it take? On the one hand Mr. Clark may be said to have proved, as against Mr. Freeman, that the castles of the Conquest were moated mounds, crowned with a palisade, and not the rectangular keeps, the "donjons" of solid stone, of which Mr. Freeman dreamed. On the other, these Norman castles appear to have been something new. Allowing for great exaggeration in Mr. Freeman's language on the subject, admitting that the horror they aroused is by no means clearly proved,[a] the fact remains that the word *castel* appears, as he says, to have been used to denote something "quite distinct from the familiar *burh* of earlier times." And if what it denoted was Richard's castle, as Mr Freeman and Mr. Clark agreed it was, it follows that this stronghold and the many others like it were something "evidently" in Mr. Freeman's words, "quite distinct from the familiar *burh* of earlier times." I am anxious not to press the argument an inch further than is fair, but you see clearly what it involves, namely, that the moated mound crowned with its palisades, an object, according to Mr. Clark's theory, long familiar to English eyes, was an object, on the contrary, so strange to them, that their language had no word for it.[b]

At this point I may speak of those who have followed up my attack. A well-known Scottish antiquary, Mr. George Neilson of Glasgow, contributed to the *Scottish Review* three years ago[c] a paper on "The Motes in Norman Scotland," in which he accepted my conclusions and boldly challenged Mr. Clark's fundamental axiom that a *burh* was a moated mound. Analysing all the facts connected with the Scottish motes, he came to the conclusion that these mounds were raised as the *capita* of fiefs after feudal institutions had been introduced into Scotland. A further advance is marked by the paper of Mrs. Armitage read before the Scottish Society of Antiquaries a year and a half ago.[d] In this very remarkable

[a] A careful examination of the passage in the Chronicle, under 1051, will show that the grievance was the "harme and bismere" wrought to the king's men by the strangers rather than their raising "ænne castel." And what Godwine demanded was not the destruction of the castle, but the handing over of the Frenchmen themselves.

[b] The argument based on the introduction (or, more strictly, the fresh introduction) of the word "castel" is strengthened, I think, by the similar introduction of the word *Tur* into the Chronicle, under 1097, to denote a rectangular keep, the Tower of London.

[c] October, 1898 (lxiv. 209-238).

[d] *Proceedings*, xxxiv. 260-288.

study the accomplished writer argued that on the one hand the *burhs* mentioned in the Chronicle are never found to have a *motte* unless the Normans have had a castle there, and that on the other the *motte* is almost universal in castles of early Norman foundation. There are details, with which I need not trouble you, on which questions might arise;[a] but in the main her paper presents a case for the Norman origin of all the *mottes* which it would not be easy to answer.

Her conclusions are well supported by my own county of Essex. In Essex the English Chronicle mentions two *burhs*, those of Colchester and Witham; and at neither of these places are there traces of a moated mound. On the other hand we have at Rayleigh a typical moated mound, and Domesday tells us that Suain of Essex "in hoc manerio fecit suum castellum." This then was a castle of the Conqueror's reign. But what is, I think, even more interesting is that Suain's father, Robert Fitz Wimarc, had held the great manor of Clavering, at the other end of the county, under Edward the Confessor, and that there also we find one of these moated mounds. Now when the Normans fled from London, on the triumph of Godwine's party, in 1052, some rode, in Mr. Freeman's words, "towards a castle in the north, belonging to the Norman Staller, Robert the son of Wymarc."[b] Mr. Freeman could not find this castle, but I suggest that it was Clavering, which virtually lies north of London. If so we have at Clavering, as in Herefordshire, a Norman *motte* of Edward's days. One point more. Of the noble stronghold of Pleshey there is no mention in Domesday; but Pleshey is virtually surrounded by two great parishes, High Easter and Great Waltham, belonging to Geoffrey de Mandeville. Now in Great Waltham there was, as at Rayleigh, a new and extensive vineyard. This, I have argued in a paper on the subject, points to the residence of a Norman magnate.[c] Cross into Hertfordshire and you find it so at Ware; penetrate even into North Suffolk, and there too a baron at Ixworth is engaged in the perilous adventure of growing his own wine. I claim, therefore, the Waltham vineyard as evidence that there was already a Mandeville stronghold near; and I hold that this was Pleshey, which for ages was the seat of the Mandevilles and their heirs.

[a] Mrs. Armitage, it seems, was not aware that the "castle of Wareham" was Corfe; and her inclusion of Berkeley, Hastings, Montgomery, Rochester, and Winchester among castles of the *motte* type known to have been built in the reigns of William I. or William II. is open to question. Nor is the destruction of houses in a town absolute proof in itself of the construction of a *motte* as she insists. It might well, conceivably, be due to the extension of a fortified area.

[b] "Some north to Rodbertes castele," in the Chronicle.

[c] *Transactions of the Essex Archæological Society* (N. S.), vii. 250.

And now if I have not detained you too long already, there are a few new points that I should like to bring before you. First, as to the name of Richard's Castle in Domesday. There is no question, of course, as to this. Mr. Clark spoke of it as

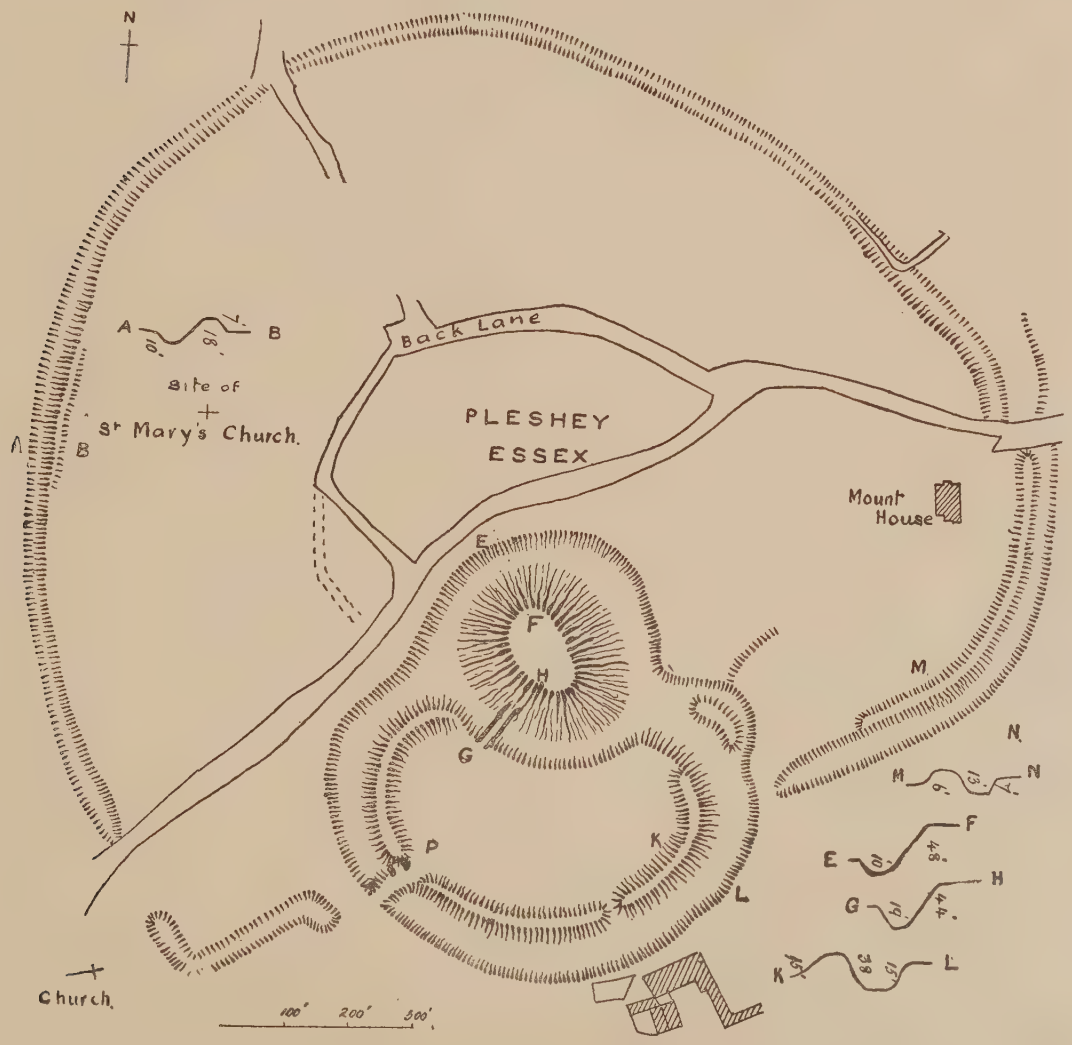


Fig. 3. Plan of Pleshey Castle.[a]

[a] The above plan was prepared by Mr. I. C. Gould, to whom the Society is indebted for the loan of the block. It illustrates the addition to the moated mound and appended base-court, which were (as at Richard's Castle) the essential features of the type, of outer courts or baileys, which is not uncommon in the case of important strongholds.

"Richard's Castle, the Auretone of Domesday" (i. 102), and Mr. Eyton, in his well-known study of the district, dealt with it as "Richard's Castle formerly Auretone."[a] Mr. Freeman, however, in his list of the "castles mentioned in Domesday" entered the Domesday name as "Averton," and strangely called attention to the fact that "Richard's Castle, the earliest, and in some sort the most historically important of all, is not mentioned."[b] As the Domesday name, so far as I know, has never yet been explained, let us ascertain exactly what Domesday actually says. In one place it tells us that Osbern, the son of Richard Scrupe, "has 23 men in the castle of Avretone" (fo. 186b); in another we read that "Robert Gernon holds lands in the castlery of Avretone" (fo. 185). The "v" of course, stands for "u," which brings us to "Auretone"; but what was "Auretone"? Why, it was simply Orleton, of which, though in another Hundred, the church is less than two miles to the south of Richard's Castle. The place itself is "Alretune" in Domesday, for "u" and "l" were then treated as interchangeable, as in "Aubigny" and "Albini."[c] You see then that it is incorrect to speak of Richard's Castle as "formerly Auretone." It was called, from a neighbouring village, "the *castle* of Auretone" (Orleton), because it had no name of its own unless men spoke of it simply as "Richard's Castle."

Now this principle of nomenclature has a very considerable importance. Take, for instance, Domesday's mention of the Conqueror making "Castellum de Warham" (fo. 78b). Mr. Clark and Mr. Freeman both assumed that this castle was at Wareham itself, and therefore sought at Wareham for William's work.[d] But Mr. Eyton in his *Dorset Survey* (pp. 43, 111, 112), and Mr. Bond subsequently in his monograph on Corfe Castle (pp. 88-91), explained that the Domesday entry referred, not to Wareham, but to Corfe Castle itself, some four miles away. Mr. Freeman, however, did not like to have his assumptions questioned; the great "accuracy" fetish was already nodding on its throne. He therefore asserted anew his belief that Wareham was meant, in a passage which showed that he had not discovered the difference between the parish of Corfe Castle and the far distant Corfe Mullen.[e] And the state of the "accuracy" fetish became more parlous than ever.

[a] *Shropshire*, v. 225.

[b] *History of the Norman Conquest*, v. 808.

[c] In Domesday, for instance, the "Alre" of four entries in Devonshire becomes "Avra" in a fifth, just as with "Alretune" and "Avretone."

[d] *Medieval Military Architecture*, i. 38, ii. 516; *History of the Norman Conquest*, v. 807.

[e] "Corfe appears in Domesday as the former holding of two Englishmen . . . . and as the

Let us turn to Pontefract Castle, as another instance of the practice of naming a castle from a place some distance away. I agree with Mr. Freeman that the name was taken from that passage of the Aire, which Orderic speaks of as "Fractus pons,"[a] and from which Pontefract Castle is some three miles distant. But this derivation has been disputed,[b] and the name does not occur in Domesday. The same remark applies to another Yorkshire castle, the great mound at Tickhill. This fortress, as is well known, was often called the castle of "Blythe," which, says Mr. Ellis, "is unaccountable, as at that manor there are no remains or traditions of a castle."[c] But this is simply another case of a castle built on a site with no recognised name, being sometimes named from a manor, in this case belonging to its lord, a few miles away.

Let us then apply this practice to a far more famous castle, that of Windsor. This castle stands, as you know, between Clewer and Old Windsor, but a mile from Clewer, roughly speaking, and two miles from Old Windsor. Old Windsor is entered in Domesday as a great royal manor, with two serjeants of the king's court among those who dwelt thereon (fo. 56b). But "the *castle* of Windsor" ("*castellum* de Windesores") is entered under Clewer (fo. 62b), which was then in the hands of a small tenant-in-capite. Out of its five hides there had been taken half a hide for this "castle of Windsor," which stood about as far from Old Windsor as Richard's Castle from Orleton, just as from the Abbess of Shaftesbury's manor of Kingston (Abbess), with its sixteen hides, the king had taken, says Domesday, "1 hide in which he made the castle of War(e)ham," that is, Corfe. This passage creates a presumption that Windsor Castle was new and its great moated mound thrown up by William. And this presumption is strangely confirmed by a statement in the Abingdon Chronicle that at Wallingford, Oxford, and Windsor, under William, "castella pro regno servando compacta,"[d] and that the abbey was called upon to provide knights to guard the one at Windsor.

But if Windsor was new, what of Arundel, which, as Mr. Clark observed,

present possession of Robert son of Gerold. From this a local antiquary of high authority (Mr. Bond) has argued that the Domesday of Wareham Castle really refers to Corfe" (*English Towns and Districts*, 153). I need scarcely say that Mr. Bond's careful arguments were, of course, not based on an error which he would have known to be such. He specially explained that the "Corfe" of Domesday, held by Robert Fitz-Gerold, was not Corfe Castle, but Corfe Mullen (p. 90).

[a] *History of the Norman Conquest* (1871), iv. 284-5.

[b] See *Medieval Military Architecture*, ii. 376-7.

[c] *Yorkshire Archæological Journal*, iv. 142.

[d] Vol. ii. 3. The authority is recognised as a good one for that period, and it also represents local knowledge, for Abingdon was about half way between Oxford and Wallingford.

resembles it closely in plan? That Domesday speaks of Arundel Castle as existing in the time of the Confessor is a point on which historians and antiquaries have all, I believe, been agreed, and it is held to be the only castle of which Domesday makes that statement. Sir Henry Ellis,[a] Professor Freeman,[b] Mr. Clark,[c] and others all take it for granted. Even Mrs. Armitage herself found in Arundel Castle, "which Domesday Book," she writes, "speaks of as a *castrum* in the reign of Edward the Confessor" (p. 274), the only difficulty in the way of her view that the *mota* was first introduced into England by the Normans.[d]

But when we turn to the manuscript of Domesday, we find the words "Castrum Harundel" written in capitals and rubricated to show that they were the name of the place, while "Castrum" begins with an enormous "C" of the same size as the initials used for Chichester, Pevensey, and Lewes. Moreover, in the often-quoted passage we read that "Castrum Harundel" rendered certain dues in the days of the Confessor, which dues had greatly increased at the time of the Survey, the Conquest having brought prosperity to the river ports of Sussex. In all this we are clearly reading, not of the mere earthwork on the hill, but of Arundel as a whole with its water-mill and its port. So when we speak of Newcastle to-day we mean thereby the whole town and not the mere castle itself. It is common in Norman chronicles and charters to find "castrum" or "castellum" employed in this sense; but, for our purpose, it is more important to observe that Domesday itself indulges in the same practice. Monmouth, to take but a single instance, is entered as "Castellum Monemude" (p. 180b), and its survey begins by stating that in it the king has four carucates and that he draws from what he holds in the "castle" five pounds a year. We then read of ploughs at work there, ploughs many in number, and so we gather what was meant by Domesday's "Castellum Monemude," words, which, as with the name of Arundel, are given in capital letters.[e] I hold therefore that "Castrum Harundel" simply means Arundel itself, which was so named at the time of the Survey from the

[a] *Introduction to Domesday*, i. 212, 223.

[b] *History of the Norman Conquest* (1871), iv. 66, 493; and *William Rufus* (1882), i. 58, ii. 43.

[c] *Medieval Military Architecture*, i. 71, 195.

[d] It is on this account, doubtless, that Mrs. Armitage, I observe, has run her pen, in the copy I possess, through the perfectly sound observation that "It is certainly remarkable that Dover Castle, the only castle which has any claim to have been built by an Anglo-Saxon, has no motte" (p. 284).

[e] "Castellum Ewias" is similarly valued at £10 a year, and we read that 5 carucates of land were there (*ibidem*), and ploughs at work on them (fo. 186).

mighty castle that earl Roger had erected on the hill above. Domesday Book compares its issues before and after the Conquest, but does not, I confidently assert, imply the existence of the earthwork, a matter of supreme indifference in itself to those who made the Survey, in the days of Edward the Confessor.

This conclusion is of much importance, for if Arundel may have been the work of that mighty lord Roger de Montgomeri, at whose Norman home, St. Germain-de-Montgomeri, earthworks are found, Carisbrooke, of which the plan is similar, might well be assigned to William Fitz Osbern, that potent warrior-earl and ruler of the Isle of Wight.[a]

For the present, however, I prefer to retain a cautious attitude, and to assert only that William and his barons threw up *mottes* as their castles. I am not prepared to go to the length of saying that, because these moated mounds can be proved in many cases to have been thrown up by the Normans, none of them is earlier in date, say the work of Danes. This would be the opposite error to that into which Mr. Clark fell.[b] But I hope that if it can be proved that some of them were raised by Danes, some one will put together and produce the evidence that they *were*; and in the meanwhile I suggest that we deal with each example on its merits That at least the bulk of them are Norman I feel no doubt. And that they equate, as alleged, the Anglo-Saxon *burh* Mrs. Armitage in her powerful paper has, I think, decisively disproved. There are cases, no doubt, in which we find these moated mounds, with their appendant courts, at places where the Normans never had, so far as we know, a castle. Such are Laughton-en-le-Morthen and Barwick-in-Elmet, Yorks, Great Canfield, Essex, and Towcester, Northants. But we must remember that, as was done by William himself at Hastings, a castle mound would be thrown up at once for defence against a hostile population by the new Norman lord, and might afterwards be abandoned by him for another site. Ilbert de Lacy, for instance, may, I think, have abandoned Barwick for Pontefract.[c] And it is thus also that I

[a] Similarly the great moated mound with its surrounding courts at Castle Acre was a stronghold of William de Warenne, at the *caput* of whose Norman fief, Bellencombre, there is still to be seen "Château du xi^e^ siècle, sur une motte énorme entourée de fossés."

[b] It is but fair to remember that the words of Orderic as to "castella" being "paucissima" in England before the Normans came are, though directly opposed to Mr. Clark's theory, antagonistic also to the view that they were previously quite unknown. These "castella," however, need not have comprised mounds. It is admitted, for instance, that Dover Castle was without one.

[c] Mr. W. H. St. John Hope has drawn my attention to the striking case of Old and New Buckenham, in Norfolk. A priory was founded at Old Buckenham by William d'Albini, earl of

should explain such types as Bramber and Oxford, where the mounds seem to have been first thrown up, and a rectangular tower built as the keep subsequently in another part of the enclosure.[a] Lastly, if *mottes* were still being raised by the Anglo-Normans in Ireland under Henry II., and in Scotland, as Mr. Neilson's researches imply, in at least the twelfth century, they may well have been among that swarm of castles which were thrown up on every side in the struggles of Stephen's reign. This might account for some that we could not otherwise explain.[b]

I may remind you in conclusion that the whole tendency of modern research on the subject has been to assign to rectangular keeps dates later in most cases than the early part of the twelfth century. What, then, was the normal type of castle for half a century after the Conquest? Must it not have been the moated mound with its timber palisade, and its moated and palisaded court or courts? And if in the eyes of the English its sight was strange and fearful, if they had to use for it a foreign word, was not the thing itself as new and as foreign as its name?

My paper originally terminated here; but I am tempted to add an argument derived from the nature and object of the moated mound as a defensive work. It is essentially calculated to enable small bodies of men, planted in the midst of a hostile population, to hold their own against a sudden rising, even when greatly outnumbered. Being thus adapted exactly to the needs of the Norman Conquerors, it possessed for them the further merits of being (1) quickly raised; (2) composed of materials available on the spot; (3) requiring no skilled labour.

But when we are invited to believe that, in the Danish wars, it was the type of fortress adopted by the English, we must ask ourselves whether it was well suited for a purpose wholly different from that of the Norman lords. It was not to protect detachments of their followers against a hostile townsfolk but to protect their own loyal townsfolk against the assaults of Danes that Edward

Chichester, not earlier than 1146, for Austin canons, to whom the founder gave *inter alia* "infra parcum cum bosco et plano *cum sede castelli* lxxx. acras, et *castellum diruendum*" (Dugdale, *Monasticon Anglicanum*, vi. 419). The earl then built himself another castle at New Buckenham, where its great earthworks still remain. See the plan in H. Harrod's *Gleanings among the Castles and Convents of Norfolk* (Norwich, 1857), 215.

[a] There is some reason to suppose that this may have been the case at Hastings also.

[b] See the cases of Hayles, etc. quoted above.

and Æthelflæd wrought. For this purpose the moated mound, it appears to me, would be useless. Its summit could hold but a few defenders, and their missiles could at most reach the base of the mound itself. Beyond that limit they had no power to afford protection.[a] A town, lying at their feet, might be sacked and burnt before their eyes. For protecting a town against attack what was needed was a wall or rampart of some kind round it. That towns were so defended we know from the evidence of Domesday, which alludes to the walls of Chester, Oxford, Colchester, Leicester, and Hereford; and as these allusions are only incidental they cannot be at all exhaustive. Indeed, the Chronicle speaks of the wall which Edward built round Towcester, and of that which subsequently girdled Exeter.

The tale of the assaults on Exeter and their fate is one which bears directly on the meaning of the word *burh*. And I think it further illustrates the confusion which inevitably follows the adoption of Mr. Clark's theory. There is really no need to assail it; we have only to watch Mr. Freeman and Mr. Clark plunging into hopeless contradiction when they attempt to apply it. Mr. Freeman's monograph[b] did not appear till 1887, and it shows stronger traces of Mr. Clark's influence than are found in *The Norman Conquest*.

The first mention of Exeter, Mr. Freeman observes, is in 876, when Alfred pursued a Danish force making for that city, but in vain; for "they had reached the fastness before him."[c] The Professor's comment ran as follows:

> we gain two main points. Exeter was in Alfred's day a fastness, or strong place. The Roman walls of Isca were doubtless still standing, perhaps not carefully repaired or strengthened under either British or West-Saxon occupation. And the word *burh*, so familiar in the military history of the next generation, is not used at this stage. This looks as if the hill which had formed the British stronghold and the Roman citadel did not just now hold that place in the attack and defence of Exeter which it did in after time. Still the walls alone would form a fastness, as the empty walls of forsaken Deva did a few years later.[d]

[a] A base court, if added, would have to depend on its own defences. The mound itself could not protect it.

[b] *Exeter* (Historic Town Series).

[c] *Exeter*, 21. This follows the words of the Chronicle, which here speaks of "þam fæstene" (I. 166-7). In Florence of Worcester its words are rendered, "quia *civitatem* jam intraverat, illam assequi non poterat."

[d] *Ibid.* 21.

This allusion to the similar episode in 894 at Chester is of much interest. Of that episode Mr. Freeman wrote in another place:

> In 894 the Danish army pursued by the English took refuge within the ruined site of Chester . . . . "priusquam Regis Ælfredi et Ætheredi subreguli exercitus, qui illos insequutus (*sic*) est, assequi poterant, intrant." The fugitives were able to defend the "geweorc," as the Roman walls are called, very successfully.[a]

The admission that "geweorc" was used for a walled enclosure should be observed. It is in the same year, 894, that Exeter again appears in history; and the language of the Chronicle on this occasion deserves to be carefully studied. In it we read that the Danes "ymbsæton Exancester," and again that "se here þa burg beseten hæfde" (I., 166-8). This, surely, makes it clear that the "burg" which they beset was Exeter itself; and so Florence understood the words. Alfred, he wrote, heard "illos Exanceastram . . . . non modica manu obsedisse." But Mr. Freeman, reading the passage through Mr. Clark's spectacles, comments on it as follows:

> But now that special word is used which was not used in the earlier story. It was now a *burh* which the besiegers beset. It may be that, at some time between the first and the second appearance of the Danes before Exeter, the city had been strengthened according to the highest standard of the time. The guardian care of Alfred had turned the mere fastness into something stronger. The English forerunner of the Norman castle was now to arise within its walls. At the north-eastern corner the neglected hill, the natural acropolis, was again strengthened. Exeter had not yet a castle; that, name and thing, was everywhere the hated work of later invaders. But the natural stronghold of the city was again fortified; Exeter had now a *burh*, and she had just proved the value of her new defences.[b]

Thus pleasantly, on the wings of fancy, we pass from a guess to statements of fact. But when we strip the passage of its plumes we find that what it asserts is that the Danes beset, not Exeter, but only a *burh* "within its walls." Of this improbable hypothesis the best criticism is found in the words of the Chronicle itself, which states that, in later days, William the Chronicler "besæt þa burh Exancester xviii dagas" (I. 340). Mr. Freeman duly quoted these words from "the short but weighty account" in the Chronicle;[c] but how did he understand

[a] *Norman Conquest* (1871), iv. 313, *note*. The Latin of "insequutus" is Mr. Freeman's.

[b] *Exeter*, 22.

[c] *Norman Conquesi*, iv. 151-2.

the word *burh?* In exactly the opposite sense to this which we have just seen him assign to it. It now becomes the whole area of the walled city:

> The walls which Æthelstan had reared, and which Swend had at least partly overthrown, had been repaired or rebuilt, and the city was again strongly fortified. . . . . But it should be noted that we hear only of the defences of the city itself; Exeter did not as yet contain a castle.[a] . . . . The new invader found the city as well prepared for defence as ever it had been against the earlier enemy. The gates were shut, and the whole range of walls and towers was thick with defenders.[b] . . . . The siege began, and was carried on with vigour on both sides for eighteen days. The besiegers kept up a constant attack on the walls. . . . . It was by undermining the walls that William at last gained possession of the city.[c]

We shall have to return to the dealings of William with the Exeter defences, and I only introduce them here to illustrate the use of the word *burh*.

Between these two periods Exeter was again attacked in 1001 and 1003, unsuccessfully on the former, successfully on the latter occasion. Of Pallig's attack in 1001 we read that the Danes entered the Exe and "eodon þa up to ðære byrig and ðær fæstlice feohtende wæron" (I. 250-251). Florence's version of this episode runs, "Dum murum illius destruere moliretur, a civibus urbem viriliter defendentibus repellitur [Paganorum exercitus]." Mr. Freeman, in his *Norman Conquest*, cited these passages and summarised their contents thus:

> The Danes now attacked Exeter, just as they had attacked London; but the citizens of the western capital fought with as good a will and with as complete success as their brethren of the east. King Æthelstan's wall stood them in good stead, and the attack of the barbarians was altogether fruitless.[d]

Here the attack is represented as repulsed by the walls alone, the walls which, as I observed above, were the natural and only effective protection for a town. But when we turn to Mr. Freeman's *Exeter* (1887) we again find that Mr. Clark's theory has effectually coloured his view:

> A few years before the wall of London, defended by the citizens of London, had proved too strong for two kings of the north. And now the *burh* of Alfred, the wall of Æthelstan —both are specially spoken of—were guarded by men no less valiant and did their work no less well. The heathen were beaten back, and the city could breathe again.[e]

[a] *Norman Conquest*, iv. 139. [b] *Ibid.* 154.

[c] *Ibid.* 156. In his *Exeter*, 36-8, Mr. Freeman adopted precisely the same view.

[d] Vol. i. 309.

[e] *Exeter*, 26.

It should be scarcely needful to say that of a "*burh* of Alfred" there is no mention, or explain that the "byrig" of the Chronicle refers, on the contrary, here to the walled town itself, the *urbs* of Florence. The next episode is the capture of Exeter by the Danes in 1003. "Her wæs Exacester tobrocen," says the Chronicle, and Florence tells us that the Danish king "civitatem Exanceastram infregit, spoliavit, murum ab orientali usque ad occidentalem portam destruxit." Mr. Freeman observed that "this does not imply the complete destruction of the city, but Henry of Huntingdon says, 'urbem totam funditus destruxerunt,' which is doubtless an exaggeration"[a] The Professor had evidently overlooked the words of his own supreme authority, the Chronicle itself, which goes on to tell us that "se here ðа þа buruh mid ealle fordyde." So Henry merely gave a rendering of the Chronicle's words, and we see that for him as for Florence the *burh* was the town itself.

We may now return to 1068, when William besieged Exeter,[b] the *burh* of the Chronicle on that occasion being, as we have seen, for Mr. Freeman, the whole walled town. Both in his earlier and in his later work he assigns to the "Rougemont" mount no part in the defence. But he could not wholly escape the question, what did William find on that mount, and what did he add to it? In the *Norman Conquest* he seems to have held that William found nothing, for he assigned to the Conqueror, as a "first step, the building of a castle"; on Rougemont "William laid the foundations of the famous castle of Exeter."[c] Next year we read of "the fortress which had grown up on the Red Mount of Exeter," and are told that "the men of Devonshire . . . . appeared in arms beneath the walls of Rougemont."[d] But in his later work (1887) he had been influenced enough by Mr. Clark's theory to take a less positive view and to hold that William merely adapted a fortress already in existence, in fact the *burh* he had now been led to attribute to Alfred.

The Red Mount of Exeter had been the stronghold of Briton, Roman, and Englishman; but the military art had advanced in Norman hands, and the defences which satisfied Alfred did not satisfy William.

The conquered city had to be secured by the building of a castle. But both nature and

[a] *Norman Conquest*, i. 315-6, *note*.

[b] See my paper on "The Conqueror at Exeter," in *Feudal England*, 431 *et seq.*

[c] *Ibid.* iv. 161. "To the right of the gate," we read, on his arrival, "there rose the high ground which William's keen eye would at the first glance mark as the site of the future castle" (p. 154).

[d] *Ibid.* iv. 272-3.

the men of earlier times had done so much that the Norman engineers had less to do than usual. The hill-side was ready scarped, the ditch was ready dug; on such a site the massive square keep was hardly needed, and the top of the hill was already turned into something not unlike a shell-keep. But a stone wall supplanted the rampart of earth which had hitherto been its defence, and towers were added . . . . Within the next year, the new defences of the Red Mount were put to the test.[a]

This, it will be seen, whittles down the construction of the Norman castle to the adaptation of an English one, and is thus in agreement with Mr. Clark's theory. But when we reject vague generalities and grapple with the plain question, what did William do? we find that Mr. Clark effectually disposes of Mr. Freeman's answer. "The earliest masonry," we read, to be seen is that of the gatehouse,[b] and Mr. Clark was doubtful whether this was the work of Baldwin (de Meules) "or his successor," while in his chapter on the shell-keeps, he questioned the existence in any such keep of masonry that can safely be attributed to the eleventh century, and asserted that "the shells of masonry . . . . were of later date than the solid towers"[c] (*i.e.* the rectangular keeps).

Here then we are brought back once more to the same, the inevitable difficulty. If, as Mr. Clark's theory involves, the castles of the Conquest were simply those of the English taken over by the Normans, how was it that the castle, "name and thing, was everywhere the hated work of the invaders."[d] Mr. Freeman seems, in the case of Exeter, to have gone so far, we see, as to admit that the Normans may only have strengthened an English stronghold by replacing earth by masonry. But this concession was of no avail, for Mr. Clark declined, rightly it would seem, to admit that the castles of the Conquest were castles of masonry at all. What then, we can imagine Mr. Freeman asking him, did the Normans really do? Where was the great innovation? What were the castles which the chroniclers describe them as founding, as constructing?[e] The answer, of course, is quite simple. We shake ourselves free of Mr. Clark's assumptions and see that what the Normans raised were moated and palisaded mounds.

Note.—I have selected, as explained above, the case of Exeter for study

[a] *Exeter*, 39.

[b] *Medieval Military Architecture*, ii. 45.

[c] *Ibid.* i. 139.

[d] *Exeter*, 22.

[e] Orderic states that William, at Exeter, "locum intra mænia ad exstruendum castellum delegit." This implies a new construction.

because its history "bears directly on the meaning of the word *burh*," and shows how Mr. Freeman was led by Mr. Clark's theory to detect an imaginary "*burh* of Alfred" within its walls. But Rougemont, it must be remembered, was a castle of a quite exceptional type, owing to the configuration of the ground. Its elevation made it a natural citadel, and in such cases the Normans seem (as Mr. W. H. St. John Hope has shown was done at the Castle of the Peak) to have simply fenced in the summit without troubling to erect a mound as the keep. Rougemont thus eventually assumed the form of a walled enclosure about 100 yards square.